SchuyLab

User's Manual

Schuyler House

26027 Huntington Lane Unit F

Valencia, CA 91355

Sales: **(800) 706-0266 (phone)**

(661) 702-1824 (Fax)

Technical Support: **(888) 724-8952**

Web: **http://www.schuylerhouse.com**

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Acknowledgments

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Karen A. Allen

Janet L. Chennault

Bruce Miller

Therese Griffin

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Laboratory Information System

The questions to ask regarding a laboratory information system are: What is the purpose of an LIS? What does it do? (These questions can be put together as "Why bother?")

What is the purpose of an LIS? Why do you want one? If you're asking this question, you probably feel the presence of a computer in the laboratory is an intrusion rather than an asset. When cells were counted on a hemocytometer and glucoses were boiled in a pot over a Bunsen burner, doctors made rare use of the lab, and there was time for a technologist to write results on a slip by hand. Now, massive numbers of laboratory tests are an integral part of every diagnosis and routine health check, and we find ourselves processing data rather than finding out what Mrs. Aldridge's glucose is running today.

As physicians have increased their laboratory utilization, and modern instruments have grown faster and more versatile, the bottleneck in the lab has become taking the information from the various sources and producing a single coherent report showing the patient's condition. This is where an LIS can prove its worth. With instruments directly online to the computer system, transcription error is reduced to virtually zero. Patient records are maintained in a permanent computer file. QC can be monitored automatically. And the physician receives a single printed report with patient values and normal ranges.

The purpose of the laboratory information system, then, is to render coherent the stream of data arriving from the various instruments and bench procedures, and free the technologist for matters demanding human judgment and discretion.

As with any new industry, computers have progressed through several stages in their development. The early lab systems, some of which are still in use, were expensive and cumbersome to work with. In the decade since the advent of the computer to the home market, the industry has evolved from a discipline intelligible to a select few, to programs that children can use to do their homework. Unfortunately, the medical market has lagged behind in this process.

SchuyLab was designed by a medical technologist/computer programmer team to bridge this technological gap. The graphic interface, now standard in home use and word processing systems, is state-of-the-art in computer software. The PC and PC network are the most powerful and adaptable hardware setups available. It is this hardware/software system, combined with extensive experience in both the computer and medical laboratory fields that Schuyler House places at your disposal with the SchuyLab Laboratory System.

Life with Your LIS

When you install an Information System in your lab, it creates a format and organization for your daily work flow. What you've had up to this point is a room full of instruments, like chattering children perched on the benches around the room. The teacher walks in. Now it's time for the students to sit down at their desks, get the day's assignments, and begin working.
Let us stretch this metaphor just a little further. The teacher has to know what today's assignments are before she can hand them out. [Likewise, SchuyLab has to have today's specimens entered into it ***first*** before the tests are run on the instruments.] The teacher has to be present to receive the work when the students are done with the assignments. [The computer has to be ***on*** and ***logged on*** when tests are run on online instruments. Many instruments can re-transmit data that has been previously performed, but many of them cannot. You don't want to have to manually input a whole morning's run because someone forgot to flick a switch and type in their initials.]

Physically, you need space for your PC, room to the right of it for the mouse pad (if you're right-handed), and room for two other types of things: a place to organize requisitions, and one or more racks for the specimens. Here's the routine: bring in a pile of specimens and slips and set them down by the PC. Look through the requisitions and sort them, if necessary, into logical order. (I.e., STATs first, each doctor's patients together, by time of draw, each ward together, ICU first.) Take the first slip and enter the information into SchuyLab. When SchuyLab assigns a specimen number, find the tubes that go with that requisition (yes, even extra tubes), and put that specimen number prominently on the tubes. Sort them into the various racks; put the slip in a separate pile. Go on to the next specimen.

When you've entered all of the specimens you want to run, print out worksheets and worklists, load your specimens on the various instruments in the appropriate order, and tell the instrument to begin. (If you have bar-coding, skip the previous sentence: just stick the specimens in the instrument any which way, punch Run and walk off.)

When the tests are completed, use any of the methods detailed in Sec. 3 - Daily Operation (Online, Worksheet, or Manual) to enter the results. Print out your patient reports.

Care and Feeding of an LIS

While SchuyLab tries to make running your lab as easy a job as possible, there are some aspects of the system for which you, the human operator, are responsible. Refer to the Recommended Checklist for a list of procedures which should be performed on a regular basis in order to keep the work flow in your lab progressing smoothly.

When we first install your system, we set up the time interval after which Cleanup can occur (see Cleanup in Sec. 9: Maintenance for more details on this process). But we still need you to push the button to initiate this process. If you notice SchuyLab starting to slow down and beginning to feel as if someone had poured molasses in the keyboard, you probably need to run Cleanup.

Many labs wish to keep a printout of their results in a notebook for easy reference. SchuyLab has two condensed-format printouts which can help you with this task: **Data Log** and **Accepted Log**. (Refer to Sec. 7 - Reports and Printing in SchuyLab for more information.)

These two log formats deal with the tests you ***have*** done. **Outstanding Tests** helps you keep track of the tests which have been ordered but for which no results have been accepted. The send-out to your reference lab that should have been back a month ago, that CEA that came in five minutes after you started the CEA run last Friday, the Oh-no!-Did-you-run-the-Sed-Rate-on-Mrs.-Benedict? from this morning... Print the Outstanding Tests report every day and go over it to make sure you know the whereabouts of all the tests and specimens mentioned on it. SchuyLab offers many other Demographic Logs and reports that can come in handy for running your lab. Please see them in Sec. 2, page 17, **The Report Printing Screen**.

The last item you need to know about the daily operation of your LIS is Back Up. We have two pieces of advice about this procedure. The first is: **Do It Daily**. Schuyler House has provided you with good quality equipment in good operating order, but there's no escape from Murphy's Law. Having your patient data backed up daily is just plain good sense. The second piece of advice is: keep a recent backup copy of your database somewhere offsite. It has been our experience that this should be a copy of the weekly backup. We've had experience recently with doctors losing all of their patient files as a result of earthquake damage to their office building. Keeping a backup set of data offsite is completely unnecessary 99.44% of the time. In that last 0.56%, it's invaluable. This is an inexpensive form of insurance you can take to protect the data available to your clients about their patients. The Daily and Weekly backups save the same information; a copy of all your reports, all your databases and all other information in your SchuyLab system. If you system goes down for any reason and your database has become corrupted beyond repair, we can restore most of your information if you have made your backups.

Recommended Checklist

Daily:

- Print Outstanding Test log
- Print Data Log or Accepted Log (if required)
- Do Daily Backup

Weekly:

- Cleanup Database
- Do Weekly Backup
- Rotate one backup disk off-site

Sec. 2 - Navigating in SchuyLab

Navigating the Graphic Seas

The concept behind SchuyLab is to build the finest tool we can for the management of a laboratory; a tool that you can use however you prefer. That idea is an integral part of Schuyler House's approach to computer management of laboratory resources.

While SchuyLab can be used in a variety of ways, the mouse/trackball "point and click" method is the best way to move through the system. If you've used Windows or a Macintosh computer, you really don't need to read any further: you already know how SchuyLab works. If you've never used a graphic interface, read on.

What do you mean by a "mouse"?

A **mouse** is a palm-sized, hand-held object, which is moved around in contact with a desktop or pad. As you move the mouse, the mouse pointer (an arrow or an I-bar) moves around on the computer screen in a corresponding fashion. When you are pointing at the button you want to push or the field you want to type in, push the first (leftmost) button on the mouse, and the action or field will be activated. (The **cursor**, a blinking vertical line, appears in the active field.)

There are other devices that accomplish the same purpose as a mouse. These include the **trackball,** where you move a roller ball with your thumb to move the pointer; and the touchpad**,** where you drag your fingertip across a touch-sensitive surface to move the pointer. These devices, and others, are available at computer stores.

The Graphic Interface

Many Laboratory Information Systems require you to move line by line through a series of decisions until you reach the workspace you want to use. Changing your mind or performing several tasks at once is a very time-costly process, since you have to backtrack through those same decisions to get to a different workspace. This is analogous to driving a car through a city, having to turn down first one street then another to get to your destination. If you get lost or want to go somewhere else, you have to drive back down those same streets again.

By comparison, a graphic interface is like piloting a helicopter. Now you can fly over the intervening streets to stop here and there without having to retrace your route. Using the mouse in SchuyLab lets you 'hop' from one task to another with just a couple of "clicks".

Navigation Methods

You can use the following methods to work with SchuyLab:

1. Mouse (or equivalent device)
2. Special use keys on the keyboard
3. Hot keys

Using the Mouse

The Main Menu is a set of seven icons displayed down the left side of the screen. These represent the categories of tasks you will perform while using SchuyLab. To use the mouse to go from one type of task to another, simply move the pointer to the center of one of the icons and click the first (left) mouse button. What you will generally see is another selection of icons in the center screen area. Point to the icon that represents the task you want to perform, and click again.

If you've been typing information into a screen (such as Patient Demographics), and you want to skip around to a different field or push the Cancel button at the bottom, just move the pointer to your desired location and click the button. If you are in an Order Tests screen, point at the test or panel you wish to order and -- You've got it! -- click the button.

In a scroll box or a list box, you can use the mouse to move up or down in the list in one of four ways:
1) by clicking on the slide bar on the right side of the scroll bar, above or below the slider (the slider will advance a page in the list);
2) by clicking on the "up" or "down" arrows at the top and bottom of the slide bar the slider will advance a single line in the list;
3) by pointing at the slider and holding down the mouse button to 'grab' it. While you hold the button down, you can 'drag' the slider up or down the slide bar. Release the mouse button to display the new section of the list;
4) many of the newer mouse have what looks like a small wheel between the two buttons. By moving this wheel either up or down, the scroll bar will move in a corresponding manner.

You can also select the items you want in the scroll box by highlighting one or more of them with the pointer.

Special Use Keys on the Keyboard

This table describes the **Tab**, **Shift/Tab**, Arrow keys, and Function keys **F1** through **F10.**

Key	Purpose
Tab	Press **Tab** to move the cursor to the next data entry field or the next icon.
Shift/Tab	Hold down the **Shift** key and press **Tab** to move the cursor backwards to the previous field or icon.
Arrow Keys (The four keys with arrows only [no numbers] on them.)	Press the arrow keys to move the cursor in the direction that the arrow is pointing. (These keys do not operate in all circumstances.)
Enter	Press **Enter** to activate the current default selection. The default selection has an extra heavy line around the edge of the button.
Space Bar	Press the **Space Bar** to activate the current highlighted selection. (If this is the same as the current ***default*** selection, either the **Space Bar** or **Enter** will work.)
F1	Press **F1** to access the Online User's Manual (the electronic version of the book you're now reading).
F2	Press **F2** to access Patient Selection.
F3	Press **F3** to access Specimen Selection.
F4	Press **F4** to display the Device Access menu.
F5	Press **F5** to display the Worksheet Functions menu.
F6	Press **F6** to display the Report Printing menu.
F7	Press **F7** to display the Special Features menu.
F8	Press **F8** to display the System Tools menu.

F9 Cancel	Press **F9** to cancel the current function ***without*** saving your work, and return to the previous step.
F10 Done	Press **F10** to save your work and close the current function.
Esc	Will close the current open box, usually NOT saving any changes you have made. This key is sometimes the only way to close a box, such as Remark Codes in Enter or Alter Results.

Hot Keys

In addition to the special use keys mentioned above, you will notice that there are letters which are underlined and capitalized on buttons, icon names and field names, such as **List active** or **Patient Name**. These are the Hot Keys. Hold down the Alt key and press the underlined letter to access the field or function, or perform the command.

Mixing it Up

These different methods of using SchuyLab are not either/or options. You may select a menu by its special use key, choose one of its functions by its hot key, and then use the mouse to manipulate data. We encourage you to experiment with all three methods, and use them in combination, as you find them most convenient.

Taking Your Bearings

Schuyler House's graphic interface is proprietary and unique. As a Windows-based program, it shares many features with the Windows graphic interface; if you're familiar with Windows, you should have little problem with SchuyLab. There are a few items worthy of note, however.

The Active Box

The SchuyLab graphic interface starts with a display of the main screen of the system ... the "Main Menu". The icons along the left side of the Main Menu summon the other menus: Patient Selection, Specimen Selection, Device Access, Worksheet Functions, Report Printing, Special Features, and System Tools. Each of these menus have icons of their own.

When an icon on a menu is selected, one of two things will happen: either the entire active screen changes to a new screen, or a smaller 'sub-screen' will appear, overlying part of the background. This is called a "box". Most boxes come with

buttons: when you use the mouse to click on a button, you accomplish some function. Very often, another box appears, partially overlying the first box. (Some tasks require three or four boxes in succession.)
The point here is that only the uppermost box is active. Clicking on one of the buttons in an underlying box has no effect. The boxes are color-coded to help you tell which is active: the inactive boxes have gray bars at their top edges, while the active box has a bright blue bar.

To return to a previous box, you must have finished with the active box. Click the mouse on the **Done,** or **Cancel,** or **OK** button (whichever is appropriate for the box in question).

Since SchuyLab runs on Windows, you can also click on the "Close" button, the X-in-a-square in the upper right hand corner of the box. This automatically cancels that box, which vanishes from the screen, and the box immediately underneath will become active (The same thing can be done by pressing the **Esc** key on the keyboard). Be aware, though, that the Close button has the same effect as SchuyLab's **Cancel** button: any work you did in the active box may not be saved.

Scroll bars

If you've worked with other graphic interfaces, you're probably familiar with scroll bars. These are the vertical gray bars on the right side of a box or window, with a square area called a "slider". When a list of items (tests, instruments, results, etc.) is too large to fit in the enclosed space, the scroll bar lets you 'scroll' up or down the list. By clicking on the up or down arrows at either end of the scroll bar, you can move up or down the list, one line at a time.

The slider tells you where you are in the list: if it's at the top of the scroll bar, you're at the top of the list. If you position the pointer on the slider, hold down the mouse button, in a scroll box or a list box, you can use the mouse to move up or down in the list in one of four ways:

1) by clicking on the slide bar on the right side of the scroll bar, above or below the slider (the slider will advance a page in the list);
2) by clicking on the "up" or "down" arrows at the top and bottom of the slide bar the slider will advance a single line in the list;
3) by pointing at the slider and holding down the mouse button to 'grab' it. While you hold the button down, you can 'drag' the slider up or down the slide bar. Release the mouse button to display the new section of the list;
4) many mice have what looks like a small wheel between the two buttons. By moving this wheel either up or down, the scroll bar will move in a corresponding manner.

Landmarks

In your use of SchuyLab, you quickly become familiar with your accustomed routes through the system. There may, however, be aspects of SchuyLab you'll find handy in accomplishing less frequently performed tasks. Here is a pictorial tour of the system to remind you of some of its capabilities, and how you can access them.

Starting the Programs

The SchuyLab LIS actually contains two separate programs, both of which need to be running when you use the system. The first, obviously, is the SchuyLab program itself. The other is called the Connection Manager, or simply Connect. This is the special software that connects SchuyLab to its device interfaces: the analyzers, any modems or barcode printers you may have, etc. This program helps the instruments (Cx7, IMx, barcode printer, auto faxing, etc.) talk, or send information to SchuyLab. The Connect icon will be on any stations that have instruments attached, that have a fax modem (for those systems that have the Fax feature) or that in some way is interfaced with other systems.

When you first turn on the power to your computer, the Windows operating system will start. After it's completely on, there will be icons on the Windows desktop. We're interested in two of them: the SchuyLab icon and the Connect icon. They'll look pretty much like this:

Before you "open" SchuyLab, double click on the Connect icon. Once it's running, you can minimize it – that is, reduce it in size to the task bar on the bottom of the screen – by clicking on the Minimize button on the blue task bar. That's the little square with an underline, in the upper right corner of the Connect box. You can find more on the Connection Manager in Section 9 - Maintenance.

Now double-click on the SchuyLab icon to start SchuyLab. Depending on how your computer was set up, simply by double clicking on the SchuyLab icon, Connect Manager will automatically start but always look in your tool bar to see if it has. Remember, your instruments will NOT communicate with SchuyLab unless Connection Manager is opened.

Signing onto the System

The first thing you'll see when SchuyLab comes on the computer screen is the sign-in box. To begin accessing SchuyLab's functions, sign onto the system.

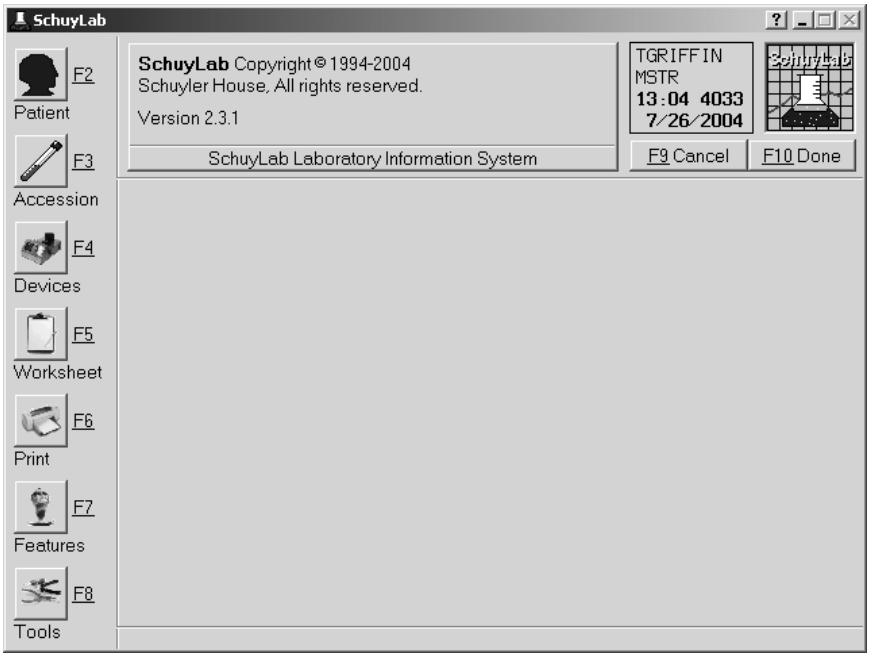
Every SchuyLab user must be assigned an ID -- usually his/her initials -- and a password known only to them. The password may be letters or numbers, or any combination, and up to eight characters in length.

In the Id entry field, type your initials. Using the Tab key or the mouse, move the cursor to the Password entry field and type in your password. (A row of asterisks will appear, in place of the characters being typed.) Then select **OK** to gain entry to the SchuyLab system.

Once you've signed onto the system, your user ID will be displayed in the upper right corner of the SchuyLab screen, just above the date and time. This lets everyone know who's signed onto that SchuyLab station. Moreover, that ID will be attached to every change made to a patient's results along with the time and date of the action. SchuyLab thus records permanently who ordered tests, who accepted the results, who went back and altered those results, etc.

When you're done using SchuyLab for a while, select **F9** or **F10** repeatedly until the "Please Sign On" box reappears. Then you can leave. SchuyLab will still be running, but this forces the next user to sign on.

The Main Menu Screen



This will be the starting point screen you see after you sign in. This could be considered the brain of the SchuyLab system. From here you can access patients, create / print worksheets and take care of any other lab business. Following is a brief description of each of the icons.

F2. Patient

Select this icon to enter a new patient into SchuyLab, or to access a patient who is already in the system.

F3. Specimen

Select this icon to enter a new specimen into SchuyLab, access a specimen already in the system, or to enter a new patient via the specimen number entry route.

F4. Devices

All your instruments that are interfaced to SchuyLab are visible as icons when you select this option. Consider each separate instrument as an "in-box" for the data that

has been transmitted from that device; this is the icon you select to access that information.

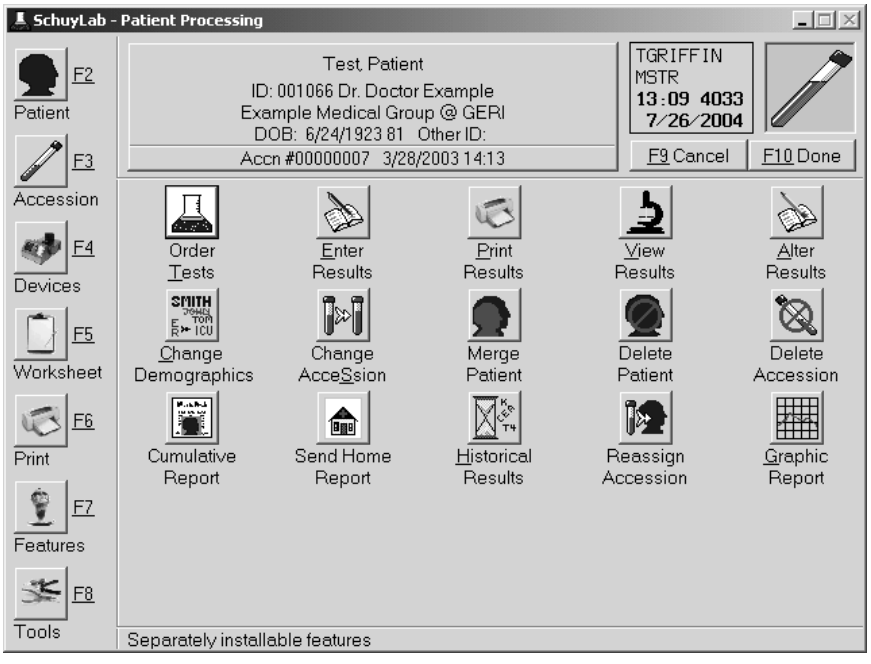
F5. Worksheet
Select this icon to set up, compile, print, or do anything you need to that pertains to worksheets.

F6. Print
This is the icon to choose to print anything out, particularly daily logs, demographic reports, &c. It's also where you can print out patient reports in formats other than the default format chosen by your lab.

F7. Features
The other icons deal with functions that are a part of the standard SchuyLab configuration. The Features menu contains options that are individually loaded onto your lab's system, according to your personal needs.

F8. Tools
This icon summons the functions that build, set up, or maintain the basic SchuyLab operations: Test Definitions, Doctor Records, Clean-up Database, etc.

The Patient Processing Screen



This screen is the heart of the system. You can reach it via **F2. Patient** or **F3. Specimen.** All the icons on this screen apply to the patient whose demographics are in the nameplate area.

Order Tests

Select this icon to order tests on a new specimen, or to add or remove tests on a specimen already in the system.

Enter Results

Select this icon to manually enter results on tests, which have been ordered on the patient. Only tests without accepted results appear on this screen; once a result has been entered and accepted that test result can only be changed under **Alter Results.**

Print Results

Selecting this icon will print out a patient report in the format selected as 'default' by your laboratory. See Sec. 7, Reports and Printing for more information.

View Results

This icon is designed for use by non-laboratory personnel, or when the doctor's on the phone asking about results. It allows test results to be viewed ***only,*** without permitting changes. Only accepted results are visible on this screen; tests without accepted results are listed as "Pending". Normal values, special ranges, and notes are also accessible through this screen.

Alter Results

Select this icon to change already accepted results on a patient. This option requires a separate security clearance.

Change Demographics

Select this icon to alter information on the patient. There are also additional entry fields for more detailed patient information (phone number, address, &c).

Change Spec. Info

Select this icon to alter information on the specimen (draw date, type of specimen, &c.).

Merge Patient

If you have the same patient entered twice (e.g., under two different spellings of the name), SchuyLab lets you merge the two files of data into one. This option requires a separate security clearance.

Delete Patient

Select this icon to entirely remove a patient from the system. A patient with specimens may not be removed until the specimens are deleted. This function requires a special security clearance.

Delete Specimen

Select this icon to delete a specimen on a patient. This is also a necessary prelude to deleting a patient. Again, this function requires a special security clearance.

Cumulative/Specimen Report

This icon prints a patient report in whichever format is ***not*** 'default' for your laboratory (that is, the opposite of **Print Results**). Usually, the default is set to be a single-specimen report; this icon then prints a cumulative report, showing the last four to six specimens.

Send Home Report

This icon prints a "send-home" report for the patient -- that is, a report with no abnormal results flagged, and the normal ranges omitted. A report, in other words, that you can send home with the patient without causing panic.

Historical Results

Select this icon to view the most recent result of each test ever ordered on the patient. If he had a PSA done six months ago, a Chem panel run last Tuesday, and a Hemogram done this morning, all of those results would be simultaneously available under this option. In short, this is the icon to select when the doctor asks you, "When was the last time I ran a PSA on Mr. Drinkwater?"

Reassign Specimen

This icon permits a wrongly assigned specimen to be assigned to its correct owner. (That is, if specimen #123 wasn't from John Smith, but from Joan Smith, the specimen record and test results can be moved from his file to hers.) Once again, this function requires a special security clearance.

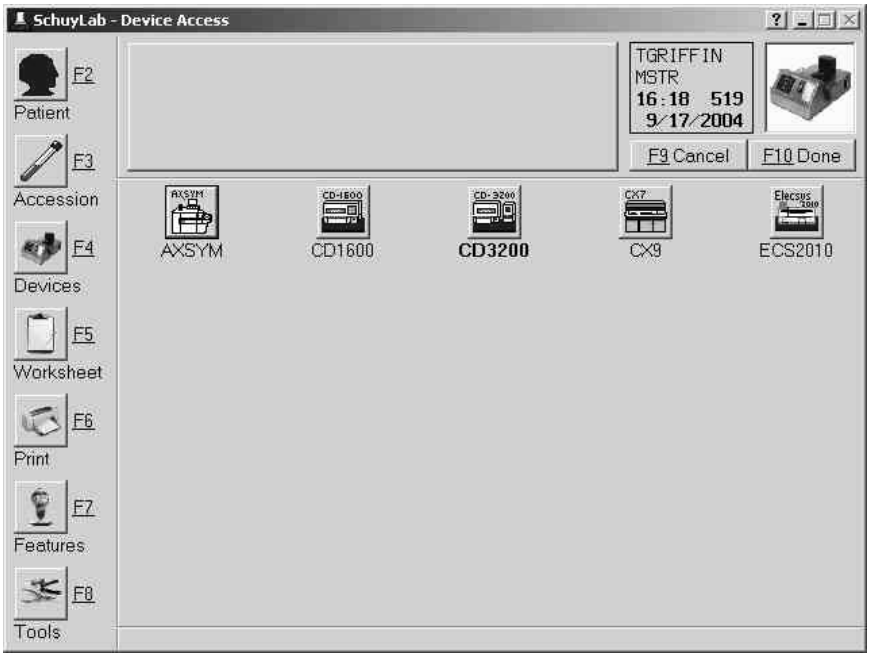
Graphic Report

This icon prints the patient's cumulative results as a graph, with the normal range marked by parallel lines. Any single test with numerical results can be graphed here. SchuyLab also permits you to define special-purpose graphs that combine several tests (e.g., Glucose and %A1c) on a single plot. The actual values of the tests are printed then printed in columns below the graph.

Bill Patient

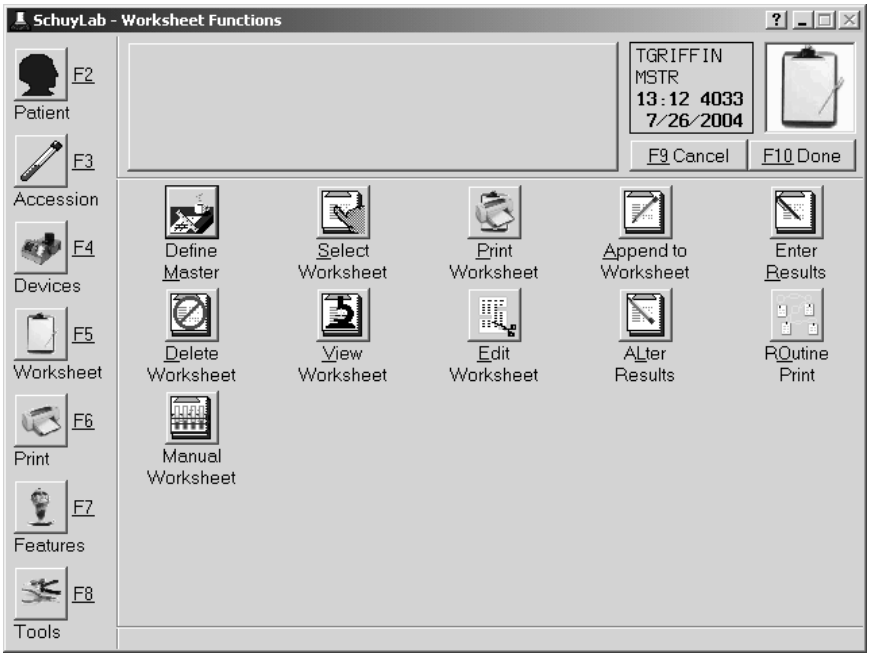
This icon allows the lab to print out an invoice to be given to the patient when they leave the lab instead of mailing it to them. This button is only available if you have the Billing module.

The Devices Screen



F4, Devices is the screen that you will use to accept the majority of your results. This screen displays the instruments that are interfaced to SchuyLab. See Section 3, Daily Operations on how to accept results through F4, Devices.

The Worksheet Functions Screen



In this screen, you can create, change, print your worksheets and accept the results.

Define Master

Select this icon to set up a new worksheet master or to alter a worksheet master already in existence. You only have to do this one time; once the worksheet has been defined, go to **Select Worksheet** to create a new "copy" of the Master Worksheet for daily use.

Select Worksheet

This icon lets you do two things: You can have SchuyLab draw up a new worksheet, with today's tests. Or you can select a worksheet that was already compiled (last week, say), for viewing, data entry, or printing.

Print Worksheet

Once you've selected a worksheet (new or old), use this icon to print it out.

Append to Worksheet
Select this icon to add new specimens to a worksheet without rearranging the order of the tests you've already set up.

Enter Results
Test results can be manually entered directly through a worksheet. Once accepted, the results are sent directly to the patients' files without having to access each patient individually.

Delete Worksheet
Select this icon to remove worksheets from the system, if you wish it done sooner than SchuyLab would through its Clean-Up Database function.

View Worksheet
Select this icon to look at your worksheet before you print it out.

Edit Worksheet
You can ***look*** at your worksheet through **View Worksheet,** but if you want to ***do*** anything to it, select this icon. You can delete that patient whose tube broke in the centrifuge, add or subtract tests from the patients thereon, or move the patients around and put them in a different order.

Alter Results
Select this icon to call up the original worksheet and re-enter or change the results.

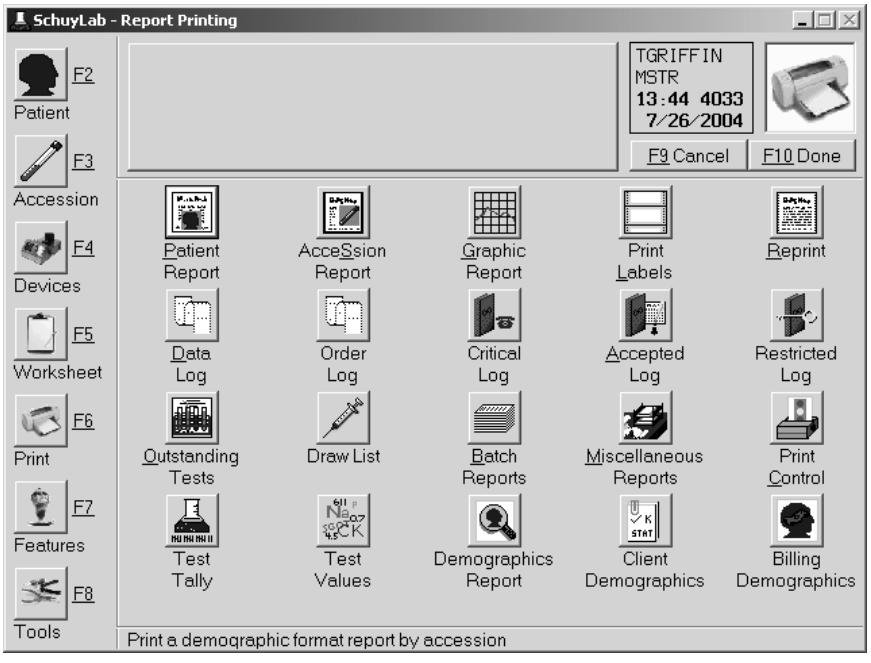
Routine Print
Worksheets that are compiled daily (or more) can be designated "Routine" worksheets. Selecting this icon will automatically compile and print all the worksheets so designated.

Manual Worksheet

This feature allows you to build a worksheet, choosing each sample in turn, rather than have them pre-assigned by the Master Worksheet.

Worksheet Barcode
The worksheet barcode will print out barcodes for the samples on the worksheet in the order they appear on the worksheet.

The Report Printing Screen



This is the screen from where you can print your various logs and reports or keep track of the daily work of the lab.

Patient Report
Select this option to print out ***all*** of the results on all of the specimens that a patient has in the system. The report will print in the in the Cumulative Report format, even if your lab has opted for Specimen Report as its default format. This is a print only option.

Specimen Report

Select this icon to print out a report of one or more specific specimens. The reports will print in a Specimen Report format, even if your lab has opted for Cumulative Report as its default format. This is a print only option.

Graphic Report
Prints cumulative patient results on a graph, then prints the data for individual results in columns below the graph.

Print Labels
Select this icon to print out labels for a range of specimens. If your SchuyLab system includes the bar-code option, the labels will be bar-coded; otherwise, they'll be a series of sequential accession numbers.

Reprint
CLIA regulations state that you must have a copy of all reports, both final and preliminary. SchuyLab stores those reports for you. To reprint a report that has already been printed, select **Reprint.** SchuyLab will display the Reprint Report box, listing all the reports that have been printed today, latest report first. Type in another date to list the reports printed on that day. Select the reports you want to reprint.

Data Log
Prints out, by specimen range, a condensed format log of all the patients, tests, and results.

Order Log
Prints out, by specimen range, the procedures ordered on each patient, in the arrangement in which they were ordered.

Critical Log
Prints out, by specimen range, the tests in the system whose results are 'critical', i.e., falling outside the critical ranges set up as part of Test Definition.

Accepted Log

Prints out, in condensed format, all patients, tests, and results that have entered the system since you last selected this option.

Restricted Log
Requires a special security clearance to access this information. A test which is flagged as "Restricted" will not print out on any log except this one.

Outstanding Tests
Prints out, by specimen or a date range, the tests in the system whose result is "Pending".

Draw List
Prints out, by specimen, date, location or client range, the accessions that have been marked as "To be drawn". Barcode labels can also be printed at the same time as the draw list. (This log is active only on SchuyLab systems with the "Indrawn Accessions" option activated under Optional Processing.)

Batch Reports
Select **Batch Reports** and SchuyLab lists all the patients with accepted or annotated/ revised results which have not yet been printed. The type of report is noted alongside each individual report entry. You may print some or all of the reports listed.

Miscellaneous Reports
This is where any custom reports created for your lab will be found. Additionally, there are two reports found by default in this option, an error log report and patient demographics. The Error Log report lists all of the system errors that have occurred since the report was last cleared. Schuyler House personnel may occasionally need to print this report as a diagnostic or troubleshooting tool. The Patient Demographics report does the same thing as the Client Demographics report.

Print Control
Allows print jobs currently in one of the printing queues to be monitored or canceled.

Test Tally

Prints a report of how many of each test or panel has been ordered, within a given specimen or date range. This can also be sorted by department.

Test Values

Prints out, by specimen or date range, a report containing all results (within a range of values) of a single test. Both the test and the range of values are selected by the user and can be further sorted by the gender and age of the patients.

Demographics Report

Prints a configurable report of all patients and their demographics (date of birth, doctor's name, &c). The report can be limited to a given date range or specimen range.

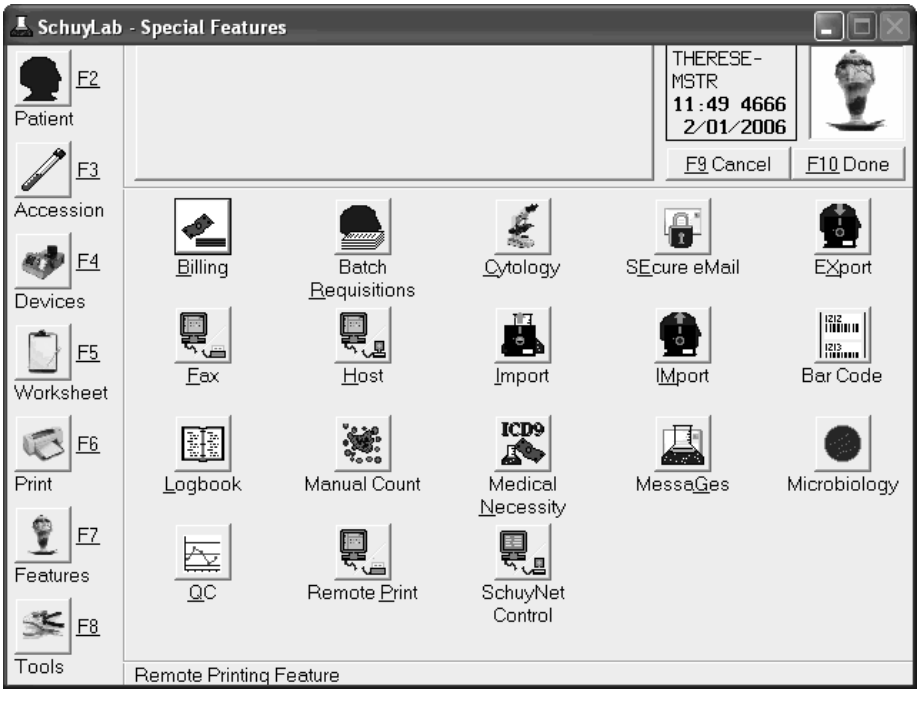
Client Demographics

Prints a configurable report of all patients and their demographics, sorted by the names of their client group. The report can be limited to a given date range or specimen range.

Billing Demographics

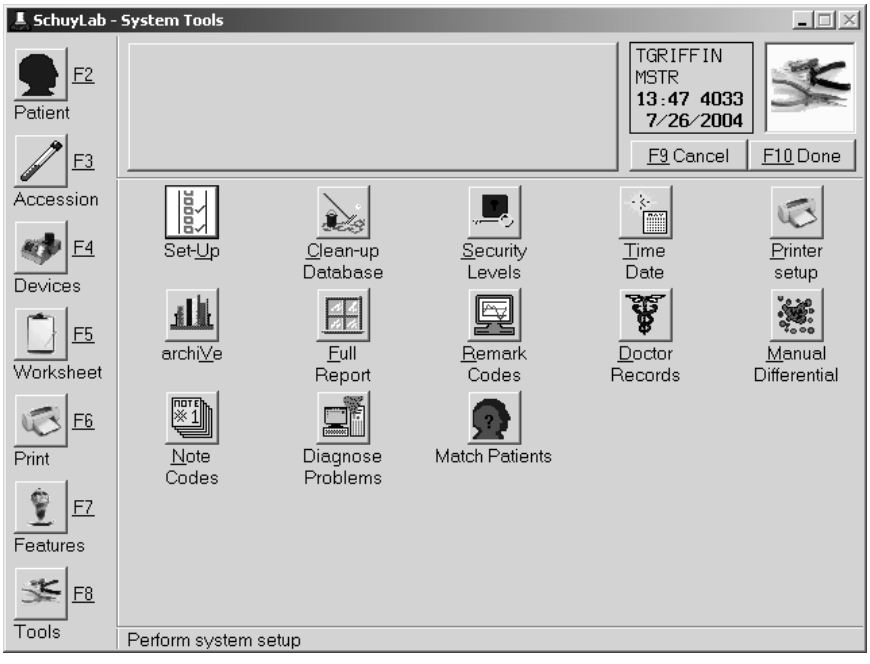
Prints a configurable report of all patients and their demographics, sorted by Bill Type. (That is, all the Medicare patients, for instance.) The report can be limited to a given date range or specimen range.

The Special Features Screen



Unlike the other screens, the Special Features screen will vary from system to system. Some of these icons, such as Billing, represent options that must be purchased for your system. Others, such as Batch Requisitions, may be added for labs whose workloads may require them. In any case, the icons and functions shown here are specific to individual labs; they are intended to perform strictly delimited tasks. See Section 10, Features for more details on all the SchuyLab features available.

The System Tools Screen



The tools in this screen help you customize your SchuyLab. This is where you set which tests you add, the panel set-up, what order tests are printed out, what is printed on the result form and many other things. This screen requires a certain security clearance for most of the buttons.

Set-Up

The Set-Up functions define the initial conditions for the SchuyLab system: the values and ranges for the individual tests, the computer ports, the translation tables for the instruments, the default entries for the patient and specimen screens, and many more.

Clean-up Database

Selecting this icon will clear out from memory all the of the electronic 'scratch paper' the system creates on a daily basis. Too much of this electronic clutter will slow the system down. This function does not affect patient results.

Security Levels
The users' access to the SchuyLab system, including passwords, authorization levels, and permissions, is controlled through this icon.

Time & Date
Allows the user to change the time and date on the system (for single-station systems).

Printer Setup
Selects the printer from the Windows Printer Setup, and the printing queue it serves.

Archive
SchuyLab permanently stores its database on the computer's hard disk, which is sized to meet the customer's expected needs. As such, the Archive function has not yet been implemented.

Full Report
Prints out a report on a single accession or patient, complete with ***all*** of the test orders, results, deletions, dates, the initials of the user who accepted the results, &c.

Remark Codes
Permits the user to reduce the most commonly used test comments to a numbered list, (up to 255 for patients, 255 for QC, and another 255 for Billing) so they don't have to be typed every time.

Doctor Records
This icon is for keeping and maintaining the files on each individual doctor, the medical groups to which they may belong, and the requisition forms specialized for them.

Manual Differential

At present this can be used as only a counter. It does not download the results into the SchuyLab system.

Note Codes

Notes may be added to patients' names, specific specimens, specific tests, test values, test results, &c. Note Codes are templates for any of these notes. Note Codes are used when the text of the note is often repeated (i.e., many result notes will say much the same thing), but unlike Remark Codes, the notes created from the Note Code templates can be edited and personalized.

Diagnose Problems

This feature is used to help determine any number of problems you may be having with your computer(s), your instrument(s) or a system error that sometimes pops up. For more information see Sec. 9, Maintenance.

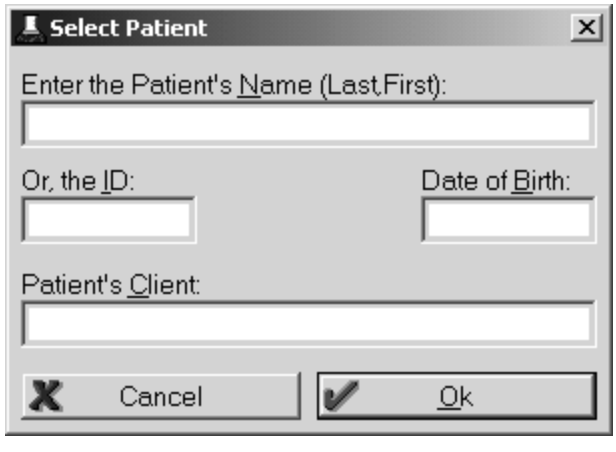
Match Patients

This search function permits the patient files to be compared, and similarities (and differences) noted. It's used for cleaning up the patients' files, getting rid of duplicate entries.

Entering/Selecting a Patient or Specimen

You walk up to the SchuyLab station with a set of orders in your hand. (You may or may not already have a specimen to go with the orders.) The question you ask yourself is: Do these orders represent a specimen that is already in the system (i.e., is there a SchuyLab specimen number associated with these orders?) or is this a case of add-on orders to previous work, or morning draws that have been accessioned?

A. If there is NO specimen number for the order: select F2. Patient. SchuyLab displays the Select Patient box. You can search for a patient by either their name, by their ID#, by DOB or their client (or medical group). You do NOT have to fill in all the boxes below, just enough to locate the patient you're interested in.



One of the following scenarios will now take place:

Type in the patient's name, Last name, First name, (or the first few letters of it) and select OK. SchuyLab recognizes the patient name and now displays the Which Patient screen. If this is a new patient, you can then choice the New Patient box, otherwise select the patient you want from the list given you and SchuyLab displays the Patient Processing screen, with the patient's demographics in the nameplate area.

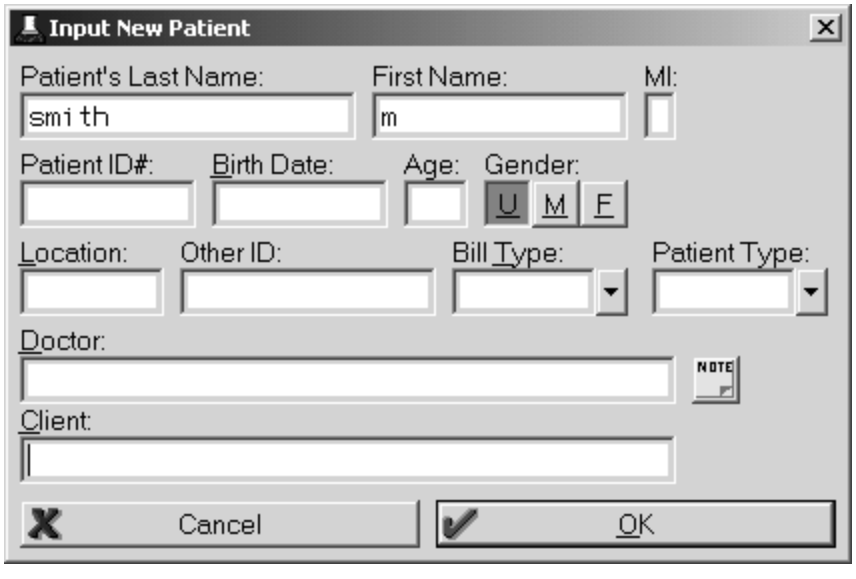
- Type in the patient's name, Last name, First name, (or the first few letters of it) and select **OK.** SchuyLab displays a list of patients whose names begin with those letters. Select the correct patient from the list. SchuyLab displays

the Patient Processing screen, with the patient's demographics in the nameplate area.

- Type in the patient's name, Last name, First name, (or the first few letters of it) and select **OK.** If SchuyLab cannot find any patients whose names match the letters you've typed in, the Input New Patient box is displayed. Complete the fields in the box and select **OK.** SchuyLab displays the Patient Processing screen.

If any patient in the system matches all the criteria listed, the Patient Processing screen will be displayed with that patient's name and demographics in the nameplate area.

If the patient's name doesn't appear in the list box: SchuyLab displays the Input New Patient box with the patient's name as you typed it.



Complete the fields in the box as appropriate.

Patient's Name — **Patient's Last name followed by their first name and, if necessary, middle initial. SchuyLab will automatically capitalize the first letter of each name.**

Patient ID# — **This can be auto-generated by SchuyLab or assigned by the lab. For more information see Sec. 8, Managerial Functions.**

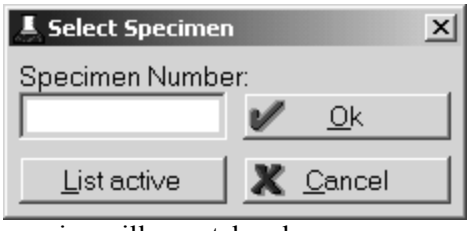
Birth Date — **It is suggested that you enter the patient's date of birth. In case of two or more patients with the same name, this will help you identify which patient you look up.**

Age	**SchuyLab will enter the age for you (after you have entered the DOB).**
Gender	U **– Unknown** M **– Male** F **– Female**
Location	**(optional) This box can be used to further identify where the patient is. Do they come from another draw station or (in the case of hospitals) from the ER?**
Other ID	**(optional) If your lab is generating its own medical records, this can be the patient's social security number or another ID number.**
Bill Type	**(optional) Whether you use the SchuyLab billing or not, you can make the type of payment for the patient. You can set it up for cash, insurance, Medicare, etc.**
Patient Type	**(optional) This box is usually used in vet labs, but can be adapted if a patient's permanent condition affects tests results.**
Doctor	**This would be the patient's primary doctor, which may not be the doctor ordering this set of tests.**
Client	**The client is the person or group that is responsible for paying for the tests. This can be the doctor or the medical group / clinic he works with.**

Note: Your SchuyLab system may be configured to automatically generate patient ID numbers. If so, skip over the Patient ID field. To override this function, or if your system doesn't auto-generate patient IDs, type a number in this field.

When you've completed the fields, select **OK.** If you are auto-generating a patient ID, SchuyLab displays the number and highlights the field. Select **OK** again to approve the number. SchuyLab displays the Patient Processing menu screen. As you select patients you will notice that the last (up to five) patients viewed since you logged on will be displayed at the bottom of the *Select Patient* box.

B. If there is a specimen number for the order: select F3. Specimen. SchuyLab displays the Select Specimen box.



One of the following scenarios will now take place:

- Type the specimen number in the entry field and select **OK.** SchuyLab recognizes the specimen number and displays the Patient Processing screen, with the patient's demographics and the specimen information in the nameplate area.

- Type the specimen number in the entry field and select **OK.** Not finding that specimen number anywhere in the system, SchuyLab displays the Input Specimen box. Enter the patient's name or ID, and alter or complete the rest of the fields as appropriate. Select **OK.** SchuyLab displays the Patient Processing screen, with the patient's demographics and the specimen information in the nameplate area.

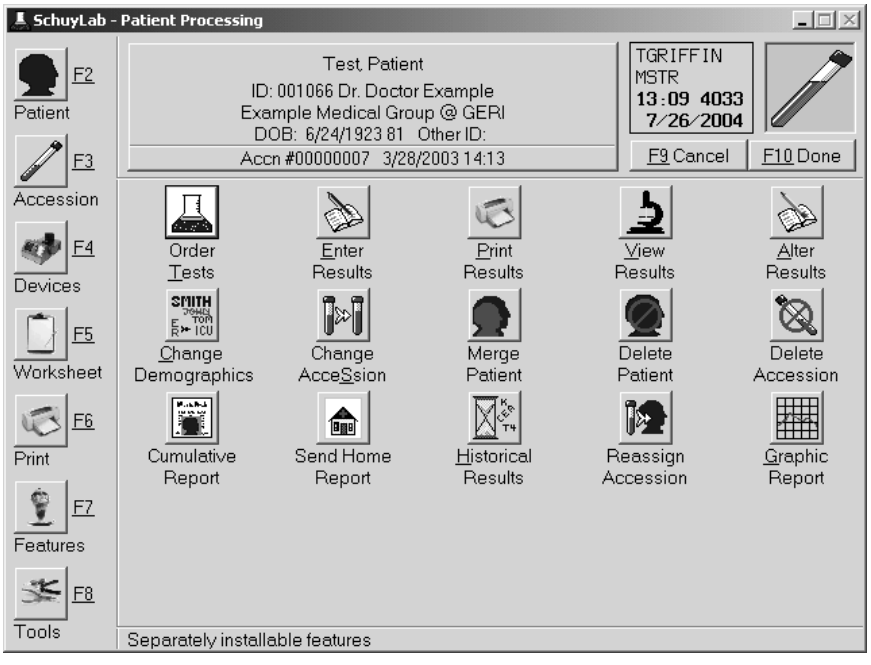
- Select **OK** ***without*** typing in a number. SchuyLab displays the Input Specimen box. If your SchuyLab system is configured to automatically allocate specimen numbers, the next available specimen number will be displayed in the Specimen ID field; otherwise, manually enter the appropriate specimen number in that field. Enter the patient's name or ID, and alter or complete the rest of the fields as appropriate. Select **OK.** SchuyLab displays the Patient Processing screen, with the patient's demographics and the specimen information in the nameplate area.

- Selecting **List Active** will give a list of the hundred or so most recent specimens in the database. If you can't remember the exact specimen ID number, you may be able to select it from this list. (We can't very well list ***all*** the active specimens in the database, or we might tie up the system until the next Ice Age.)

As you select accessions you will notice that the last (up to five) accessions viewed since you logged on will be displayed at the bottom of the *Select Patient* box.

Patient Entry Quick List		
To select a patient already in the system:	**To enter a new patient:**	**To select a specimen already in the system:**
1. Push **F2** 2. Enter part of patient name or ID# 3. Select name from list box 4. SchuyLab displays the Patient Processing menu	1. Push **F2** 2. Enter part of patient name or ID# 3. Where patient name does not appear in list box, select **New Patient** 4. Enter patient demographics 5. SchuyLab displays the Patient Processing menu	1. Push **F3** 2. Enter specimen number 3. SchuyLab displays the Patient Processing menu.

The Patient Processing Menu Screen

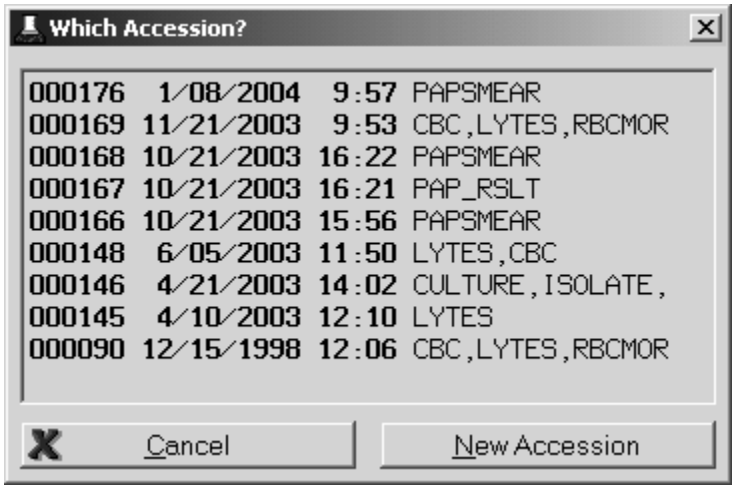


The functions on this menu screen apply ***only*** to the patient whose name appears in the nameplate at the top of the screen. If you select **Order Tests,** you will order tests on that patient; if you select **Print Results,** you will print results for that patient.

Ordering Tests

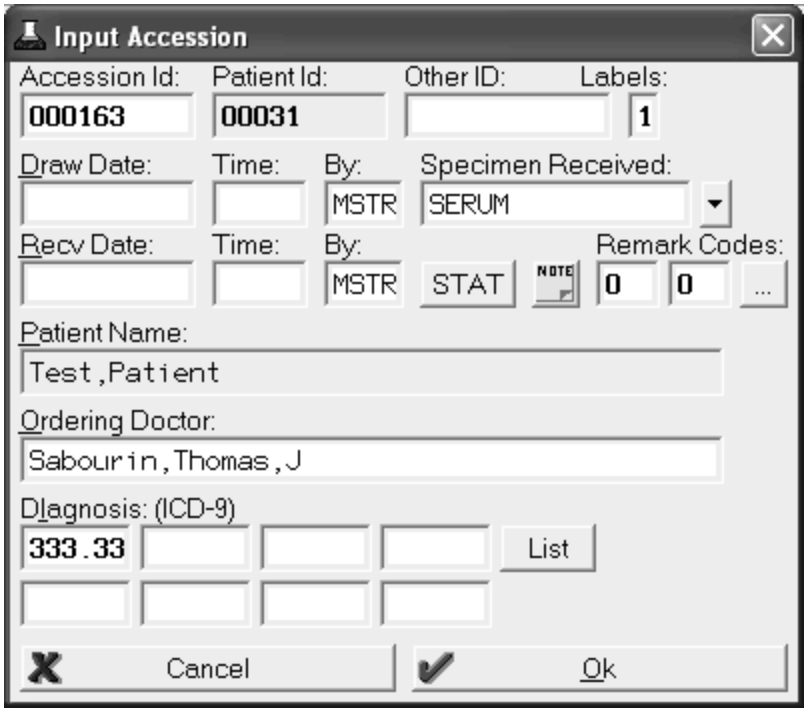
Once you've entered or selected a patient and displayed the Patient Processing menu screen, the next step is to order tests for the patient. Select the Order Tests icon on the menu screen.

If you have NOT already selected a specimen number: SchuyLab displays a list of specimens for the patient unless this is the patient's first time.



The ***Which Accession?*** box lists all the specimens for that patient, giving the specimen ID, date and time for each, and the tests and panels ordered on that specimen. To choose a specimen from the list, point-and-click with your mouse (or highlight the correct specimen number and press the spacebar).

If the appropriate specimen is not on the list, select **New Specimen.** SchuyLab displays the Input Specimen box. (If there are no specimens on file for the patient, SchuyLab displays the Input Specimen box automatically.)



Complete the fields in the box. One item to note:

When you first bring up this box, the initials of the person who drew and received the specimen, will default to the operator initials who has signed on the SchuyLab station when the specimen is entered (as above). The Draw and Receive date and time can then be entered as any other date (01/02/06 or 010206) or can be put in as -n or +n which means that many days in the past or future (i.e. -2 means two days ago, +2 means two days from now), +0 or -0 will translate to today. Depending on how the SOP for your lab has been set up (Sec. 8 – Managerial Functions) the next new specimen will display the date and time in one of three ways. If the lab manager has chosen the **Current** selection, the date and time will always default to the present date and time with each new accession. If the lab manager has chosen the **(blank)** selection, the date and time will always default to a blank date and time with each new accession. You will need to enter the date and time for each accession. If the lab manager has chosen the **Prior** selection, the date and time will always default to the date and time of the accession you just finished with.

The other fields are:

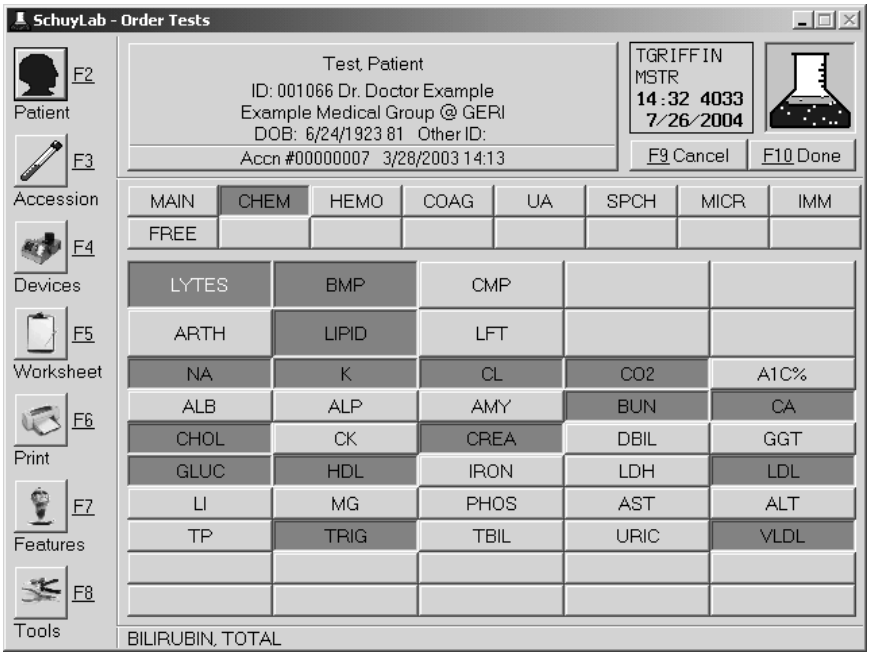
Specimen ID **This field may be configured to automatically generate a specimen number. If your system is set up to auto-generate specimen numbers, skip over this field. To override the auto-generated number, or if your system isn't set up for auto-**

	generation, type a number in the field.
Patient ID	**The can be auto-generated by SchuyLab or assigned by the lab. For more information see Sec. 8, Managerial Functions.**
Other ID	**This box would be pertaining to the specimen you have. IF the doctor's office (or the other facility that sent you this specimen) has an ID number for the specimen, you may want to reference it here.**
Labels	**If you are using a barcode printer, you can specify the number of labels you need to print, or you can use the default number (in this case we are only printing out 1).**
Specimen Received	**This field defaults to "SERUM" (or whatever had been defined as default as part of Default Accession, in Setup) and it can be overwritten. You can select another specimen type from the pull-down list of types; or you can simply type your own text (e.g., "RD, 2LAV, GR, UA") into the field.**
STAT	**If this specimen is a STAT, clicking on this box will move this specimen to the top of any worksheet you may use and also print STAT on the barcode labels.**
Remark Codes	**Remark codes are short (usually a sentence) pre-written comments about this specimen**
NOTE	**The note pad gives you much more writing space than the short sentence that the remark codes give you.**
Ordering Doctor	**The ordering doctor can be different than the patient's primary doctor.**
Diagnosis (ICD-9)	**Today, where most labs are billing to Medicare and such, it is important to add the Diagnosis codes that the doctor should be supplying to you on the requisition form.**
Draw Required	**An accession can be ordered even before the specimen has been received. In many hospitals (and some labs) the tests are ordered and then a nurse will go and draw the blood. If your lab is set up for a draw list, you can print out the list of the patients you need to visit.**

When you've completed the fields, select **OK.** If you are auto-generating a specimen ID number, SchuyLab displays the ID number and highlights the field. Select **OK** again to approve the ID number. SchuyLab displays the Order Tests screen.

If you *have* selected a specimen number: SchuyLab displays the Order Tests screen.

The Order Tests Screen



The Order Tests screen displays the different departments or sections of tests, arranged in a row of buttons across the top of the screen area. (These buttons are configurable to meet your facility's specific requirements.) The first button is the MAIN or default selection. Under this button you will find the tests and panels your lab orders the most often.

The rest of the screen displays the individual tests and panels defined for that department. (When the Order Tests screen first appears, that department is the first, or default, selection.) The larger buttons represent panels, while the smaller buttons are separate tests. The exact arrangement of these buttons -- how many test buttons, how many panels, where they lie on the screen -- is likewise configurable to your taste. This is done through the Screen Definition function, as discussed in Section 8: Managerial Fuctions.

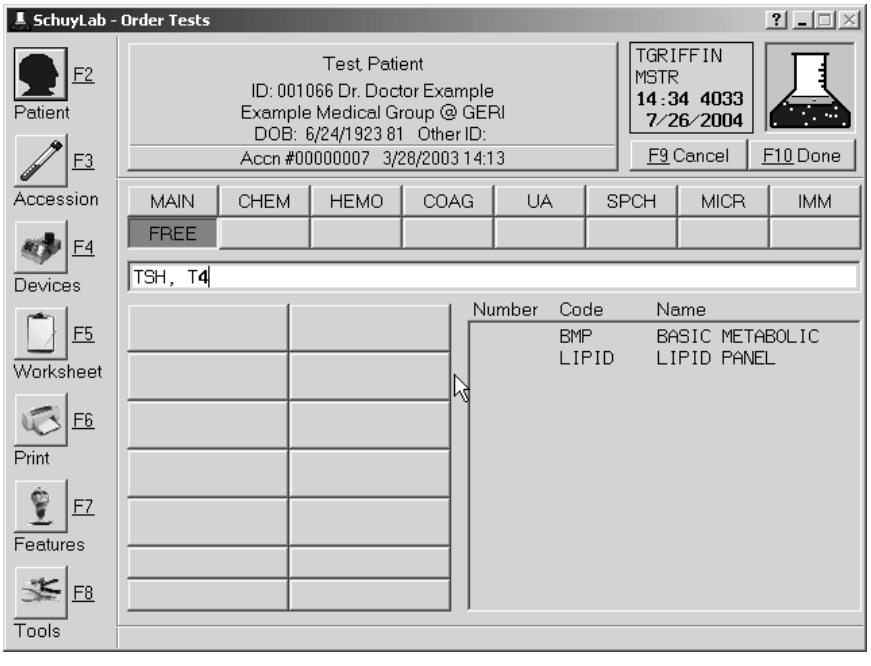
Tests and panels that have been ordered, but not performed, appear in dark grey. Tests that have been performed, whether the results have accepted or not, appear in green and, until the results are deleted or unaccepted, cannot be canceled or changed in this screen.

If the test you want isn't displayed at first, select the button for the general section or department of the tests you need to order (for example, Chem). The screen will change to display the tests and panels for the department you selected.

To order a test or panel: Select the appropriate button. As you select a button, it darkens and appears to recess into the screen. When you select a panel, all the buttons for the associated tests darken, too.
To undo a selection: Select the button again to toggle the test off. You may, for instance, select a panel button and then select an individual test to cancel it alone. The rest of the tests in the panel remain selected.

To move to a new department: Select a different department button from the top row. The rest of the screen displays the tests and panels for the new department.

To order a test or panel by typing: Some users prefer not to use the mouse to select buttons and icons; they would rather type in the codes for the tests and panels being ordered. There is a special Order Tests screen designed for such people; it's set up through Screen Definition, like the others, and it looks like this:



This screen has a few buttons for frequently ordered tests and panels, but its main use is through the text windows: the rectangular window on the right, which shows what's already been ordered on this specimen, and the long text window at the top. If you have an Order Tests screen configured this way, type the codes for the tests or panels you wish to order in the long window, separated by commas, as shown in the example. Then press the Enter key. The tests will disappear from the long text

window, and appear in the "tests ordered" window on the right. (The disadvantage of this format is that it requires the user to memorize all the codes for the tests. Most people prefer the more graphical interface.)

To undo a selection: Type the code for the test you wish to cancel, preceded by a minus sign. (That is, if you'd ordered Albumin, and now wished to cancel the order, type "-ALB" in the long text window, and press Enter. That test will disappear from the "tests ordered" window; the test will have been "un-ordered".) The rest of the tests in the window remain unaffected.
To complete Order Test processing: When you have selected all the tests required, select **F10. Done.** The system accepts the orders and returns to the Patient Processing menu.

To cancel Order Test processing: Let's say you've chosen a dozen panels, canceled a test here or there, reordered, and suddenly decide to start over. To cancel all the changes made in Order Tests, select **F9.**

Cancel. SchuyLab returns to the Patient Processing menu screen without accepting any of the orders.

Order Tests Quick List	
To select a specimen and order tests:	**To order tests for a selected specimen:**
Select **Order Tests** Select an existing specimen number, or enter a new one Select the first department or section button Select tests or panels Select the next department button Select tests or panels When you have selected all the required tests, push **F10**	Select Order Tests Select the first department or section button Select tests or panels Select the next department button Select tests or panels When you have selected all the required tests, push F10

Entering Results

Once you've ordered all the required tests, your attention will turn to the physical samples themselves and the laboratory instruments. When you've run the tests, you can enter the results in SchuyLab.

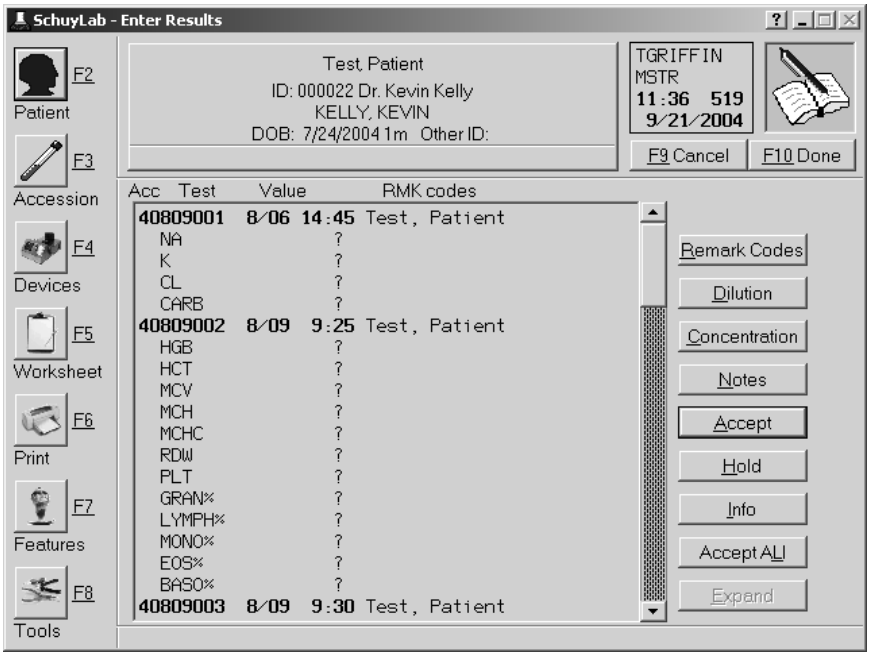
There are three ways to enter test results into SchuyLab: Manual entry, Online entry, and Worksheet entry.

Manual Entry

To manually enter a patient's test results in SchuyLab, display the Patient Processing menu screen. (See the procedure "1. What to Do First.") On the Patient Processing menu screen, select **Enter Results.**

If you have *not* selected a specimen number: SchuyLab displays the Enter Results screen, listing all the specimens for the patient, including specimen ID (accession) number and date. For each specimen, SchuyLab lists all the tests that have been ordered, but no results yet entered and accepted. (Test results that have been accepted will not appear in the Enter Results screen.)
If you have selected a specimen number: SchuyLab displays the Enter Results screen for that specimen only, showing all tests with no results.

The Enter Results Screen



The Enter Results screen displays a set of tests in a scroll box and a column of buttons on the right side of the screen. If you have entered this screen through **F2. Patient,** all the specimens for that patient will be listed, with all the tests to be entered (as in the example above). If you've entered through **F3. Specimen,** only the tests for that specimen will be shown.

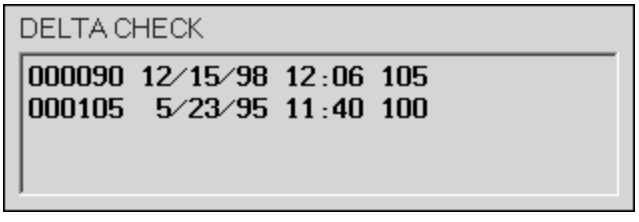
Highlight and select the appropriate test in the scroll box. SchuyLab displays an entry field (a 'window') for the test. Type in the result, and use one of the following keys to complete your action.

Key	Purpose
Enter/Accept	Press Enter or the **Accept** button to accept the result. SchuyLab marks the test with an **A** to indicate that it is accepted, and moves to the next test.
Accept All	*This feature is not yet active.*
Unaccept	Select the escape (ESC) key (the window or entry field will disappear, and the entire line will be highlighted in white). Hitting Enter unaccepts the test result (the **A** at the start of the line, denoting an accepted result, will disappear).
Cancel Test	While holding down the Alt key, push the Delete key. SchuyLab will ask you if you truly wish to delete that test order; select "yes" (or just Enter).
Tab	Press Tab to move the entry field to the next test without accepting the result.
Shift/Tab	Hold down the Shift key and press Tab to move the entry field backwards to the previous test.
Hold	In many labs, there are techs who can not (for various reasons) accept results, although they can enter them. Using the "Hold" button, a tech can enter the results of a test, select the "Hold" button and the results will be entered, but not accepted (that will have to be done by someone with the proper clearance).
Expand (for Trigger Tests)	The **Expand** button is activated only for trigger tests. Move the entry field to a trigger test, and the lettering on the **Expand** button changes from grey to black. Select **Expand.** This brings up the Expanded screen with the appropriate follow-up tests. Only those results that are actually entered will be retained in the patient's file; fields with no results entered will not be retained. Close the Expanded screen is by selecting the **Done** button; the retained types will appear on the screen beneath the trigger test. The trigger test's entry field will still be active; make sure that a result (e.g., *SeeBelow*) is entered and accepted for the trigger test itself.
Escape	Press the Escape key to change the entry field back to a highlighting cursor on the mouse, then point-and-click on any of the tests in the scroll box.
F10. Done	Press **F10. Done** to save your work and close the current function.

Delta Check

When you enter the patient's result on a specific test, if you have set up the Delta Check variation (see Sec. 4, Tests and Panels,) SchuyLab flags the results if the results exceed the range.

Let's say you have a patient come in and one of the tests you run on him is a Glucose. The test result is 80, so you type it in and hit the accept button. If this patient has had this test performed before and you have a delta range set up in the test, a box will pop up on your screen if the present results make the criteria.

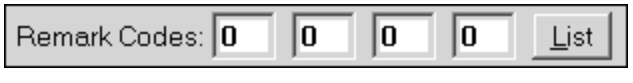


As you can see, the previous 2 results are displayed. If this is something that the doctor should be notify of, you can add a note or remark code on this test.

While we are in this screen, let's look at the other buttons that are on the right hand side of the screen.

Remark Code

To add a Remark Code: Select Remark Codes. SchuyLab displays the Remark Codes box for the test.



You are able to type in the numbers for up to four Remark Codes. Each code number designates a pre-recorded comment, the sort of annotation that would occur frequently in your lab; they are defined by you for your purposes. There are three different sets of Remark Codes: for patients, QC, and billing. SchuyLab keeps track of which set of Remark Codes is appropriate for the type of entry you're annotating.
To see a list of the patient Remark Codes, select the **List** button in the Remark Codes box. SchuyLab displays a scroll box listing all the currently available Remark Codes; you can select the one you want, and its number will automatically appear in the first available entry field in the Remark Codes box.

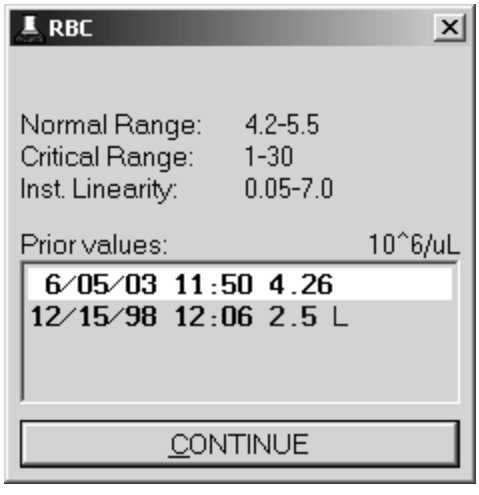
Once the numbers of the desired Remark Codes are typed into their entry fields, press Enter. SchuyLab removes the Remark Codes box and displays the numbers of the codes you've selected to the right of the test result. The full text of the Remark

Codes does not appear in the Enter Results screen, but will appear in the patient's report.
To leave the Remark Codes box without entering any Remark Codes, press the Escape (ESC) key.

If you wish to add a Result Code to the list, or modify one that's already on the list, you must leave the Enter Results screen. Go to **F8. Tools** and select **Remark Codes,** as described in Section 8: Managerial Functions.

Info

To examine information on the test: Select **Info.** SchuyLab displays the [Test] Info box for the test.

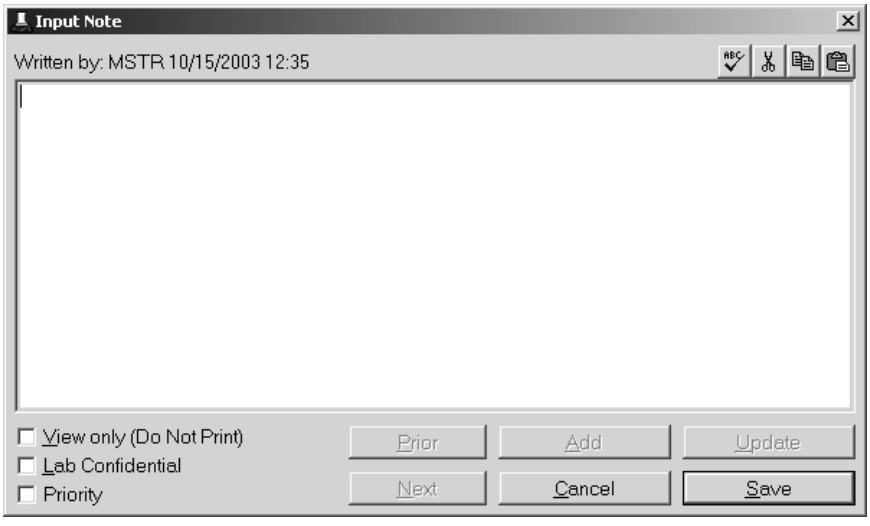


The box contains all the previous patient results for that test, the normal range for that test, and the critical range and range of instrument linearity if known. This information is derived from the ranges and flags established for the test when it was defined.
To alter or add to the information in the box, see the section on Test Definition in Section 4: Test and Panels.

To close the Information box, select **Continue.**

Note

To add a note on the test: select Notes. SchuyLab displays Input Note box.



Type your note in the blank box. The text is free-form: there are no tabs, and the text will 'wrap around' the box here without regard for spaces or punctuation. (SchuyLab prints notes to fit your specific note format.) Line returns may be inserted using the "|" character, or they may be typed using the Enter key as with normal word processors. For that reason, the Input Note box is the only part of SchuyLab where the Enter key is ***not*** the same as **Save,** or **Done.**

It's also possible to compose a note using Note Codes. Like Result Codes, Note Codes are pre-recorded texts, defined by you for annotating your lab's tests. Unlike Result Codes, Note Codes can be combined into a single comment, with additional words inserted between or after them.

To enter a Note Code as part of your note, type the number sign (#) followed by the code number. The number sign must be the ***first*** character in the note if you plan to use Note Codes.

Treat the Note Code just as though it were a phrase of text. For example, let's say that Note Code #10 was defined to be the phrase "This specimen was unspun on arrival". We type "#10 -- Please resubmit" on the note, and select **Save.** The note will interpret the Note Code, and the resulting text will say "This specimen was unspun on arrival -- Please resubmit". Other text, characters, even line returns will be treated just as they are on a hand-typed note.

Several Note Codes can be combined in a single note. (This is one of the advantages of Note Codes.) Thus, you might type "#10. Also note: #21. #3 as soon as possible." When you select **Save,** the note will read something like "This specimen was unspun on arrival. Also note: Quantity not sufficient. Please resubmit as soon as possible."

If you wish to add a Note Code to the list, or modify one that's already on the list, you must leave the Enter Results screen. Go to **F8. Tools** and select **Note Codes,** as described in Section 8: Managerial Functions.

Once the text has been entered, select any appropriate conditions:
"**View only (Do Not Print)**": Checking this box and your note will not print out on any patient reports.
"**Lab Confidential**" Checking this box and your note cannot be viewed by anyone who does not have the security clearance of "Lab Staff".
"**Print in Bold**" Checking this box will cause the note to print on the test report in bold letters, to draw immediate attention.

To save your note and close the Input Note box, select **Save.** Otherwise, to close the Input Note box without saving your note, select **Cancel.**

You may select that note again, to amend it if you wish; or you may write a second note, to follow the first. There is no restriction on the number of notes that may be added to a single test result.

Concentration or Dilution

To enter a concentration or dilution: Select the appropriate button. Enter the dilution or concentration factor in the space provided (i.e. for a 1:2 dilution, enter 2). SchuyLab automatically multiplies or divides any existing result by the concentration or dilution factor. Press Enter to place the new result in the entry field.

When you have entered all the required information, select F10. Done. SchuyLab accepts the test results, enters them into the patient's record, and displays the Patient Processing screen.

Using the Expand Button with Trigger Tests

Trigger tests are designed to be followed by certain other tests that aren't directly ordered by the physician, but which are performed after the trigger test shows a positive result (positive in this sense as "further testing should be done"). The follow-up tests are part of the customary processing of the specimen, yet aren't reported unless relevant results are obtained. There are at least four trigger tests defined as part of SchuyLab -- Urine Casts, Urine Crystals, Manual Diff and RBC Morphology -- but you can define additional trigger tests as you need them.
To illustrate how trigger tests work: the test for RBC Morphology is a qualitative test, generally ordered as part of a CBC. If no abnormal cells are seen, the result is entered as *Normal,* and no more needs to be done. If abnormal cells ***are*** found, the exact types of cells are identified (spherocytes, macrocytes, or whatever) and numbered; and the results entered into the patient record. Rather than have a separate order for each possible type of cell, RBC Morphology is defined as a trigger test: it allows results to be entered for only those types which need to be reported.

The follow-up tests for a trigger test are called from the Enter Results or Alter Results screens. When the entry field 'window' is activated for a trigger test, select the button labeled **Expand.** This brings up the Expand [Test Name] box with the appropriate follow-up tests.

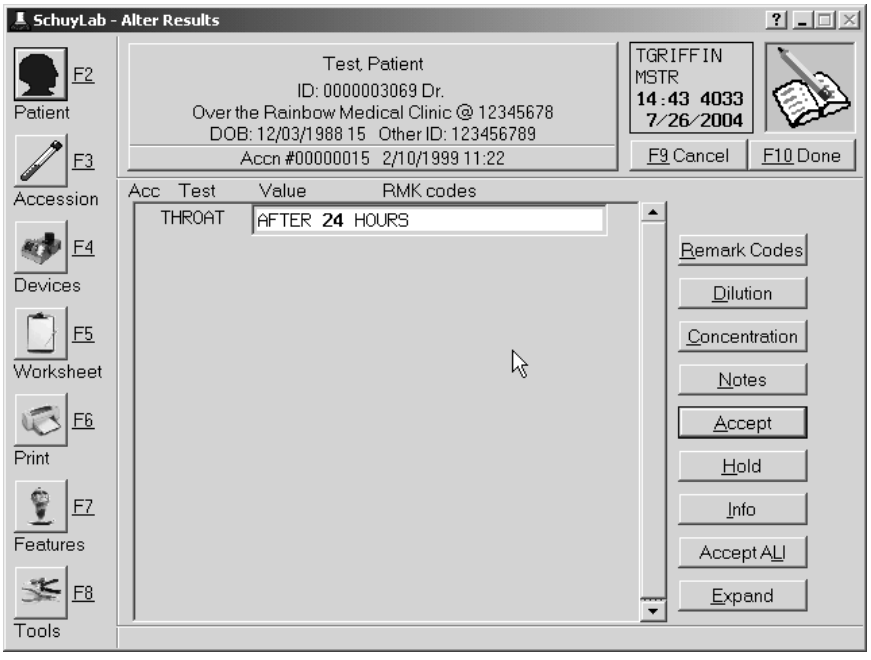
(How does the **Expand** button know which follow-up tests to display in the Expanded box? you may ask. Well, as part of the Test Definition for this particular trigger test, we attach the test RBCMORPH to a panel (which we've imaginatively called RBCMOR). The panel RBCMOR contains the follow-up tests we wish to see in the Expanded RBCMORPH box. The panel can be edited as we wish, including the order in which the tests are displayed. This is explained in greater detail in the section on Panel Definition, found in Section 4, Tests and Panels).

Follow-up results are entered in the Expand [Test Name] box in exactly the same manner as on the Enter Results screen. ***Only*** the follow-up results that have been actually entered will be retained in the patient's file afterwards; tests with no results entered will not be retained. The Expanded screen is then closed by selecting the **OK** button; the retained results will appear on the screen beneath the trigger test. The trigger test's entry field will still be active; be sure that a result (e.g., *SeeBelow*) is entered and accepted for the trigger test itself.

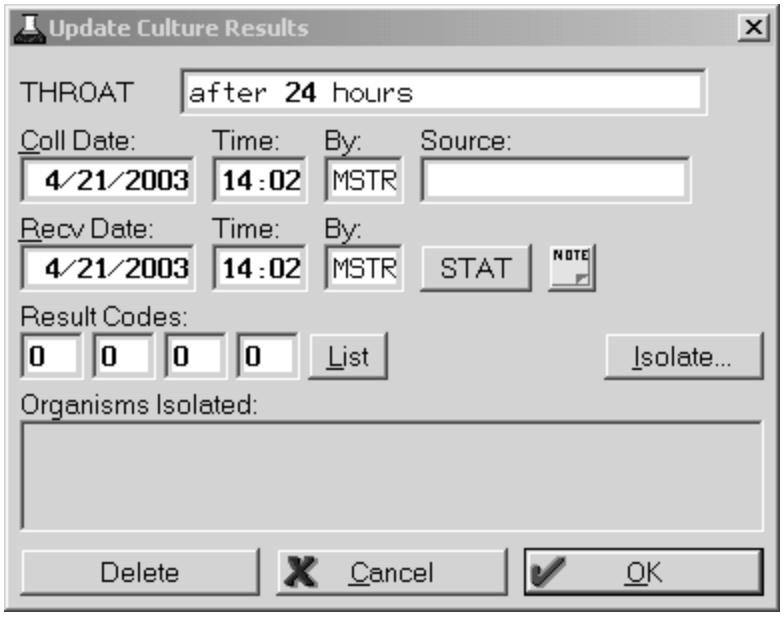
Entering Microbiology Results

Microbiology results are entered for culture tests (that is, any tests for which "Culture" has been selected in Test Definition) in much the same way as other trigger tests, using the **Expand** button. Microbiology requires a bit more than other trigger tests, though: for one thing, they require some special setup procedures, which are described in the Microbiology section (see Appendix A). Once set up, though, Microbiology results may be entered through the Alter Results screen (we recommend that screen, rather than the Enter Results screen, for reasons that will become apparent momentarily).

Let's take a concrete example. We've ordered a culture to be done on a given swab. Now we want to enter the results. From the Patient Processing Screen, we select **Alter Results.** SchuyLab displays the Alter Results screen. We select the culture test to get the result entry field (the 'window'). Notice that the entry window for a culture test is much larger than that of other tests; it was defined that way as part of Test Definition.



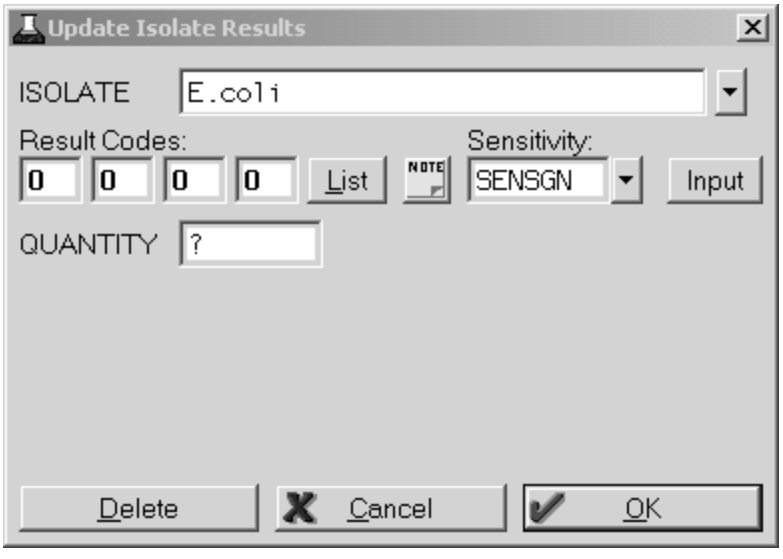
In the entry window, type in your result. In this case, we've typed "after 24 hours". (Had we seen no growth, we'd have typed "No growth seen" or words to that effect, and we'd have been done.) Now select the **Expand** button. SchuyLab displays the Update Culture Results box.



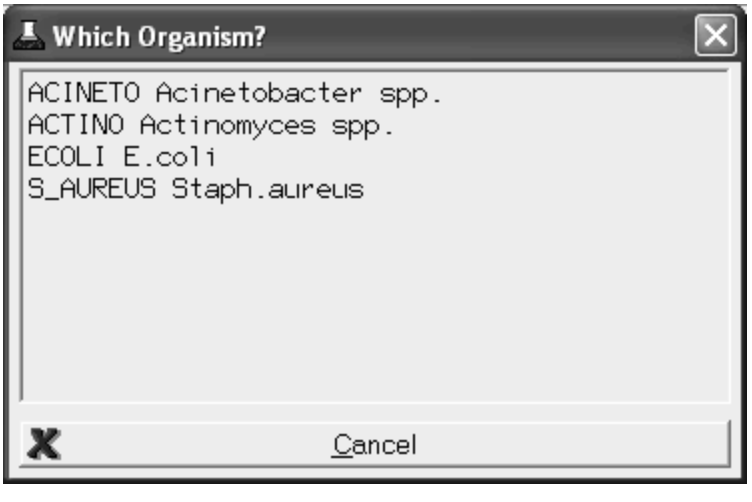
The Update Culture Results box shows the name of the culture test, and the entry already typed. It can be changed at this point, if desired, by simply typing over it.

Coll Date, Time, By	**Collect date and time. This defaults to day and time that you enter these results and can be changed to reflect when you collected the specimen. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.**
Recv Date, Time, By	**Received date and time. This defaults to day and time that you enter these results and can be changed to reflect when you received the specimen. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.**
Source	**You can specify the source of the swab in more detail. For a wound culture, for instance, you can type "left arm".**
Stat	**If this specimen is a STAT, clicking on this box will move this specimen to the top of any worksheet you may use and also print** STAT **on the barcode labels.**
Note	**As with all the other yellow note pads in SchuyLab, you can type in a free-text note.**
Result	**Enter the numbers of the Result Codes (up to four of them) to be appended to this test result. (A typical comment here might be the growth medium used for the culture.)**

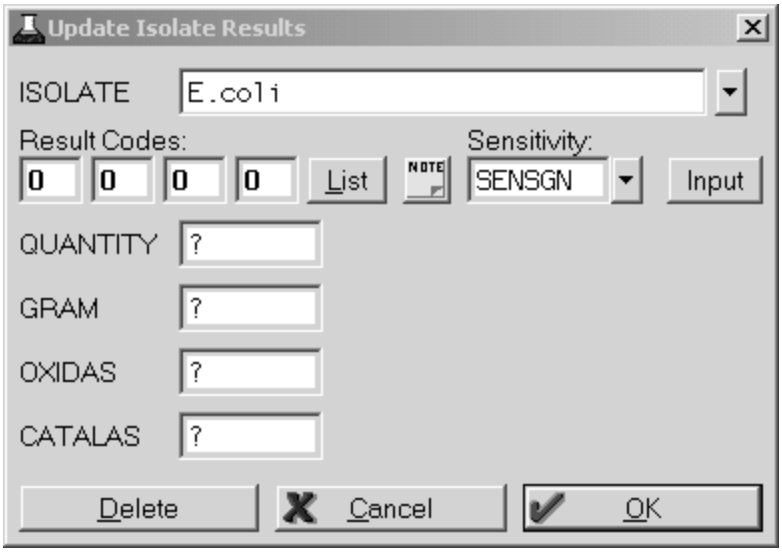
When you're ready to enter the name of the organism you've isolated, select **Isolate.** SchuyLab displays the Update Isolate Results box.



In the ISOLATE field, enter the test code for the organism you've isolated. If you don't remember the correct code, click on the arrow next to the Organism field. SchuyLab displays the Which Organism? box, listing all the organisms currently defined in your system.



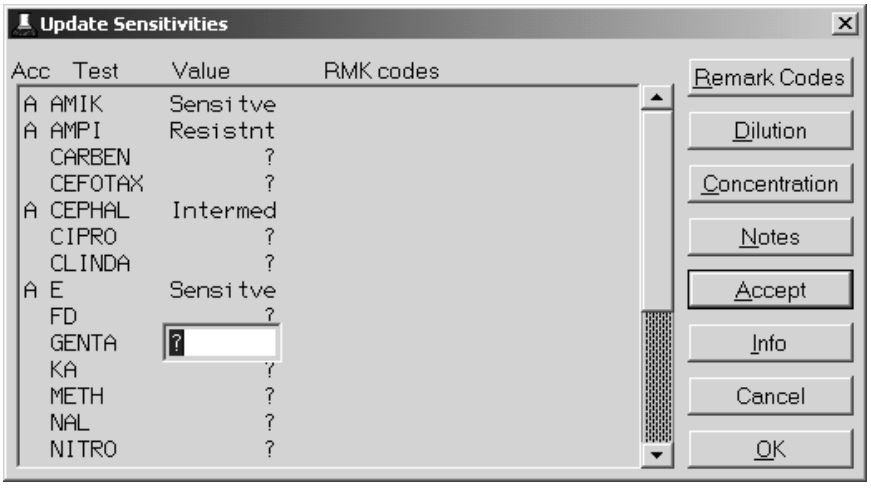
From this list, you may select the organism you've isolated in this sample. Selecting an organism from the list removes the Which Organism? box; SchuyLab displays the Update Isolate Results box again, with the Organism field filled.



Note that the Sensitivity field is already filled as well. This sensitivity panel was linked to E. Coli during Setup. If you wish to override the defined panel and choose another sensitivity panel, you can use the pull-down list to display the currently defined sensitivity panels (that is, all panels with names beginning "SENS") and select from the list.

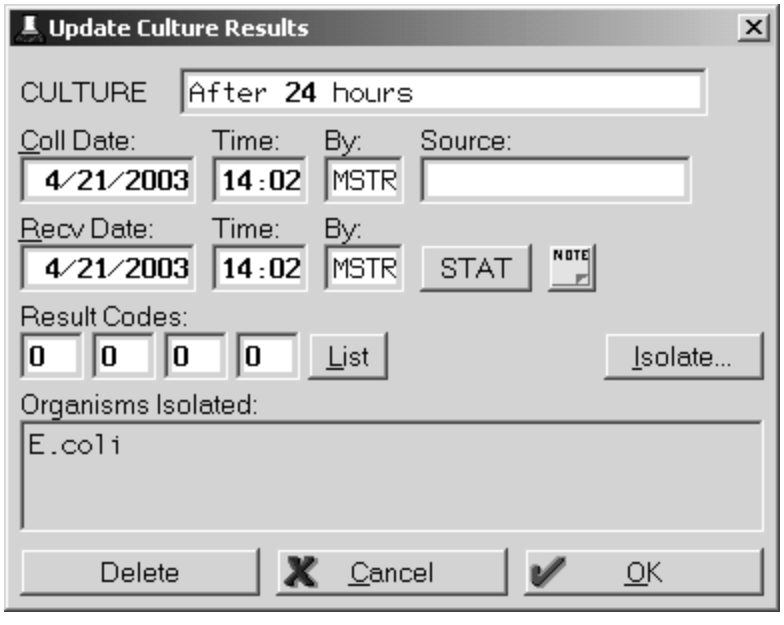
In the Result Codes fields, enter the numbers of the Result Codes (up to four of them) to be appended to this test result. (A typical comment here might be the colony count for this organism.) Or select the yellow Notes icon to type in a free-text note.

Once an organism and sensitivity are identified, select the **Input** button. SchuyLab displays the Update Sensitivity box.

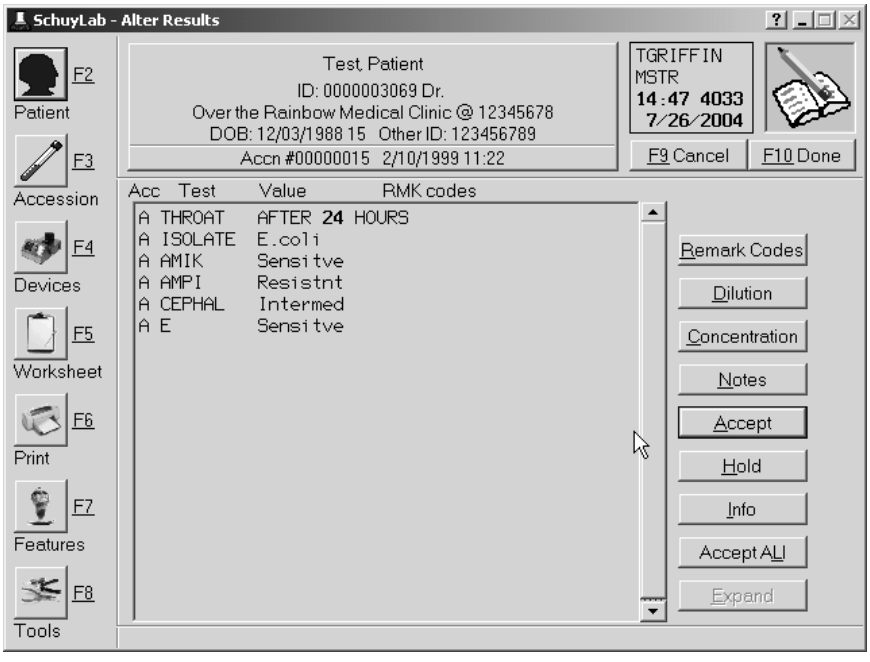


The Update Sensitivity box shows all the antibiotics on the sensitivity panel you've chosen. Enter the appropriate values for the tests. Only those for which values are entered will be accepted and appear on the report. When done, select **OK.**

SchuyLab returns to the Update Isolate Results box. If you're satisfied with all that's been entered, select **OK** again. SchuyLab returns to the Update Culture Results box, with the organism name in the Organisms Isolated field.



If you've isolated an additional organism, select Isolate again (as described above). If this is the only organism found, select **OK** again. SchuyLab returns to the Alter Results screen.



The result for the culture, the organism isolated, and the antibiotics for which results were entered, are all displayed. They can be accepted into the patient's file in the normal manner.

Now, what if you'd found an additional organism? It can be entered in the same way as the first organism: Through the Update Culture Results box. You may still be there, as described above, after having entered your first organism (you presumably knew how many organisms you'd isolated when you started). Or, if you're back in the Alter Results screen, simply select the culture test, as though you were updating its result, then select **Expand.**

Select **Isolate.** SchuyLab again displays the Update Isolate Results box. In the Organism field, enter the code for the second organism you've isolated, just as you did for the first organism. Select the **Input** button to enter the sensitivity results. Repeat the same steps as with the first organism. You may repeat the process for as many organisms as you've identified on your sample. When complete, select **F10. Done** to accept the results into the patient's file.

Manual Result Entry Quick List
To manually enter results:
On the Patient Processing screen, select **Enter Results** Select a test Select the appropriate button to display information, modify, or annotate the test Type in the result and press **Enter** SchuyLab accepts the result and moves the entry field to the next test

Online Entry

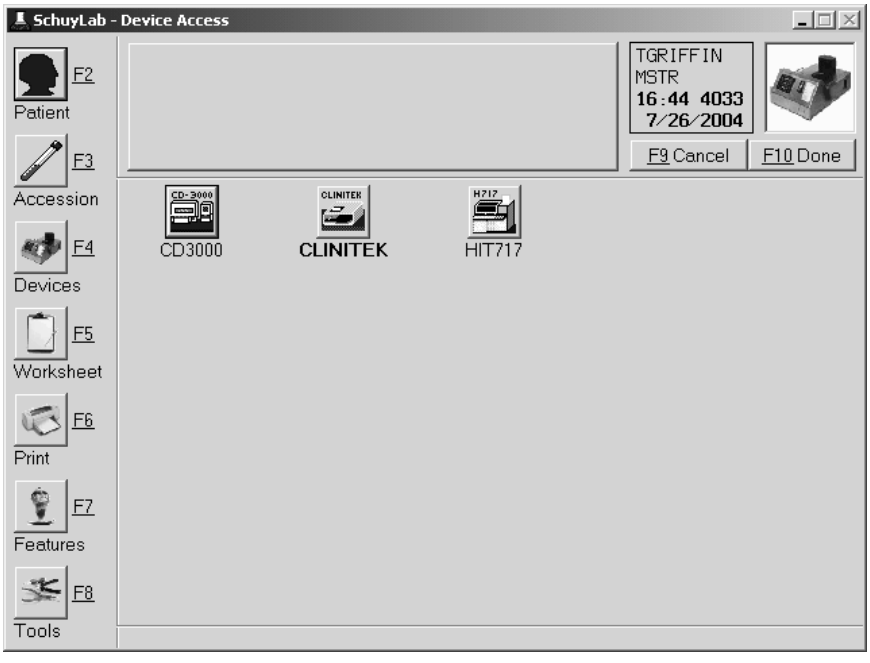
One of the strengths of SchuyLab is its ability to interface directly with a wide variety of lab instruments. In some cases, communication across the SchuyLab interface is bi-directional: The instrument receives specimen numbers and test instructions from SchuyLab, and transmits test results in return. Other instruments can communicate with SchuyLab in one direction only, sending test results to the SchuyLab system. Either way, the test results are received directly from the instrument, reducing possible human error in data entry.

SchuyLab stores the data it receives from an instrument in an instrument log. The results are ***not*** automatically accepted into the patient's file. Think of the Device Interface as a 'holding area' for the instrument's test results: nothing happens to those results until you, the user, take some action. You can accept, reject, alter, or annotate results, individually or en masse, in a set of data you receive on a specimen. SchuyLab also tells you if you've already accepted results for these tests, so that you can decide whether to keep the old results or accept the new.

Accessing the Device Interface:

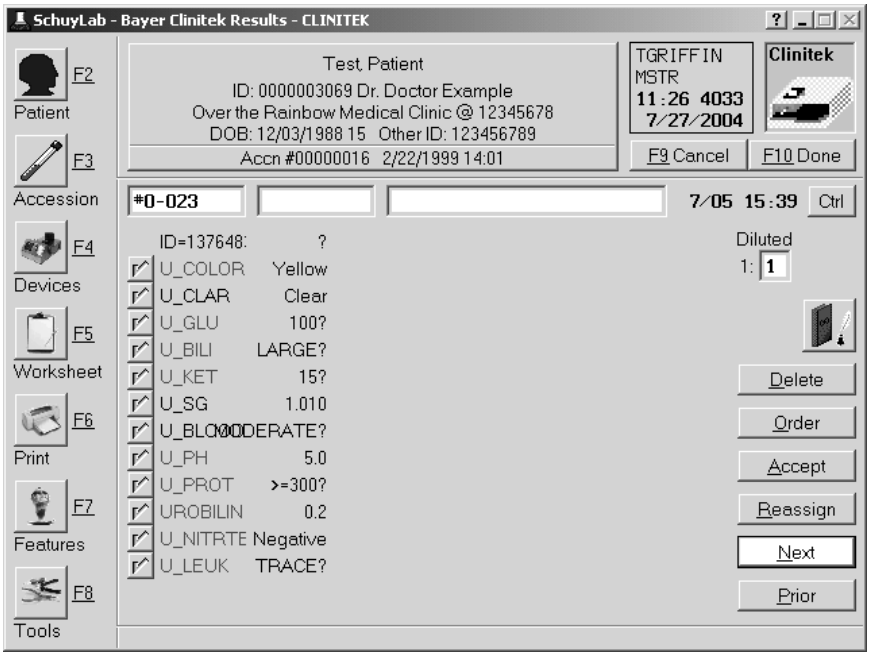
To access the interface for a particular instrument: Select **F4. Devices.** SchuyLab displays the Device Access menu screen, with icons for each of your online instruments.

The Device Access Menu Screen



(The instrument icons appearing in the illustration were chosen as typical. Your Device Access screen will show the icons for your instruments.)
SchuyLab will "BOLD" the name of a device that has results waiting for you to accept or delete them. Select the appropriate icon. SchuyLab displays the [Instrument] Results screen, with the test results for the oldest outstanding specimen.

The [Instrument] Results Screen



The [Instrument] Results screen displays three fields across the top of the screen: specimen number, patient ID, and patient name. If the instrument transmits this information, it appears in these fields. If SchuyLab recognizes the specimen number, it displays the associated patient's nameplate above the screen, and places checks in the check boxes before the ordered tests.

If the test results are unacceptable: Select **Delete** to delete them and display the next set of results.

If the test results are not the ones you want to view: Select **Prior** or **Next** until SchuyLab displays the set of results you want. This process does not alter the status of the results you bypass, which remain in the [Instrument] Results screen to be approved or deleted later.

If the test results are reasonable: Check the patient ID and patient name on the screen against the information in the nameplate. If the specimen number is incorrect, these fields will not match.

If the specimen information and patient nameplate are correct: Review the results.

If the specimen information and patient nameplate do not match, or there is no patient nameplate: The specimen number may be incorrect, or invalid. Type

over the incorrect number with the correct number and select **Reassign.** SchuyLab displays the nameplate for the matching patient. Now you can review the results.

If there is no specimen number, but there is a patient ID and/or patient name: Select **Reassign.** SchuyLab displays the nameplate for the matching patient, and the Select Specimen box. Highlight the correct specimen number and press the spacebar. Now you can review the results.

If there is no specimen information: type the specimen number in the first window and select **Reassign.** SchuyLab displays the nameplate for the matching patient. Now you can review the results.

Reviewing Test Results

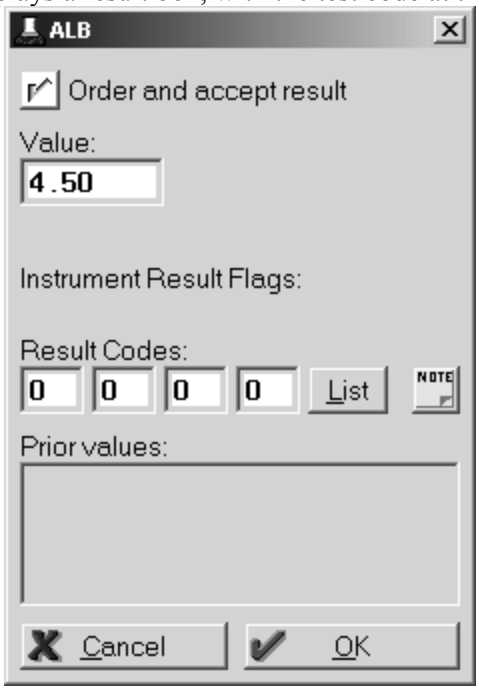
The [Instrument] Results screen displays a check box and test name for each test the instrument performed on the specimen. Tests ordered in SchuyLab have checks in the boxes. If a test was not ordered in SchuyLab but was performed by the instrument, the test name appears without a check in the box. Clicking the ***right*** button on the mouse in that check box will order that test on the specimen, without having to go back to the Patient Processing screen; or you can select the **Order** button to order ***all*** the unchecked tests.

When you accept the results by clicking the **Accept** button, only the tests with checked boxes are accepted. Test results with unchecked boxes are discarded.

If the name of the test appears in ***green,*** it means that SchuyLab already has an accepted result for that test, on that specimen. If the test name does not have a check box (with or without a check) in front of it, that test has not yet been setup for use in your system. The test name will be followed by a question mark, to emphasize the point that SchuyLab doesn't recognize it. The test will need to be translated, as outlined in Sec. 8, Managerial Functions.

To toggle a checkbox on or off: Select the check box with the ***right*** mouse button. Checked boxes toggle off; unchecked boxes toggle on.

To annotate, alter, or accept a result: Select the check box with the ***left*** mouse button. SchuyLab displays a result box, with the test code at the top.



The box shows the check box and current value of the test, as well as the previously accepted value (if the test name appeared in green)and all prior results (if there are any); any result flags that were transmitted by the instrument; a yellow "note" icon for adding free-text notes; and four Result Code fields.

Add or remove the check mark on the check box, to accept or refuse the test result. If there is a previous test result, checking the box will replace the previous result with the new result.

When all the information in the box is acceptable, select **OK.**

Some of the test results may appear in blue or red, or be followed by letters and symbols. These colors and symbols are defined below.

Color/Symbol	**Definition**
Red, H	High
Blue, L	Low
Red, CH	Critical High
Blue, CL	Critical Low
Blue flag	There is an instrument message for this test.

When you have completed your review, select **Accept** to accept the results and display the next set of results. SchuyLab accepts the checked test results and sorts them, with any notations, into the patient's file.

Accepting Online Results Quick List		
1. Push **F4** 2. Select the appropriate instrument icon 3. Examine the information		
If results are acceptable:	**If results are not the ones you want to view:**	**If results are not acceptable:**
1. Review the results 2. Remove the check mark from any individual test(s) you do not want to accept 3. Select **Accept** 4. SchuyLab displays results for the next patient.	1. Modify the specimen number, patient ID, or patient name to link the correct patient to the data **OR** 2. Select **Prior** or **Next** to display different results	1. Select **Delete** 2. SchuyLab displays results for the next patient.

Worksheet Entry

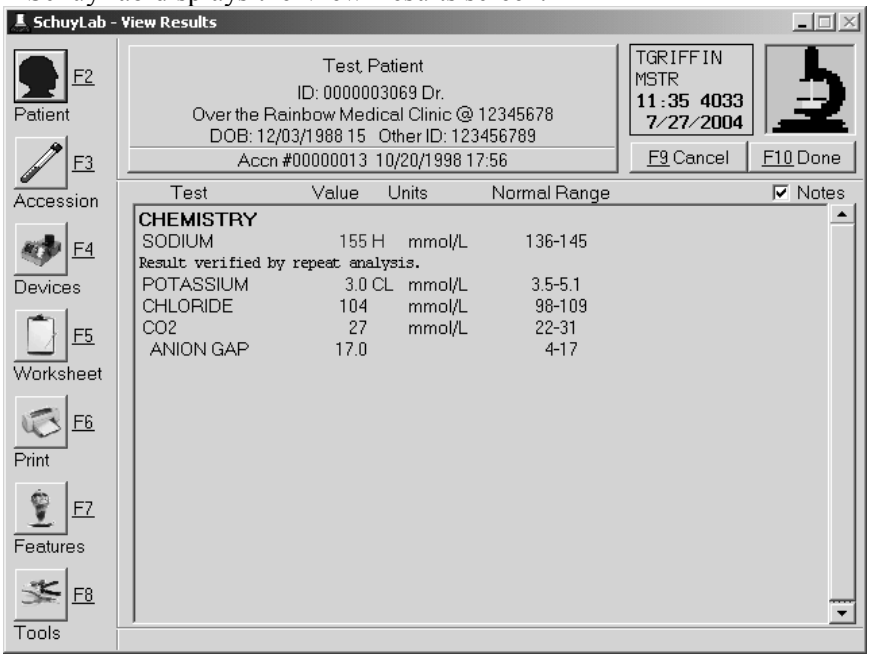
Certain instruments and bench tests which are not online to SchuyLab can be run most efficiently on a worksheet format. SchuyLab gives you the option of entering the results from these tests in the same format as the worksheet you used to run them. The first step in this process is to select the specific worksheet you need. To select a specific worksheet and accept the results see Sec. 5, Worksheets.

Viewing Results

Once test results are accepted, they can be reviewed in any of several ways. (One quick way involves the **Print Results** icon, and will be discussed in that section, below.) Probably the best way is through the **View Results** icon. This feature allows the user to see the results in the same order as they'd appear on the printed report -- but with no danger of accidentally altering or deleting a result. View Results is ideal for clerks, receptionists, and other users who shouldn't have result-editing authority.

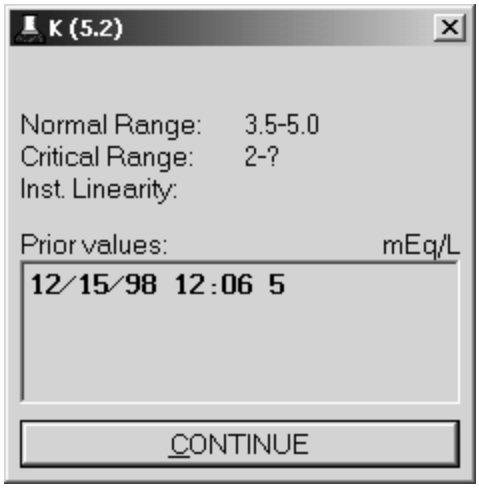
To view patient results:
From the Patient Processing menu screen, select **View Results.**

SchuyLab displays the View Results screen.



The results are listed in the same order as on printed reports, with the same headings. Abnormal values are flagged; annotated results are displayed after the test and its information.

To see the full information on a result, select that value. SchuyLab displays the [Name of Test] box.



The current test value is shown in the blue bar at the top of the box, next to the name of the test. (In this example, the test is Potassium, and the value is 5.2). Results from previous specimens on this patient, if any, are shown in the area labeled "Prior values". The Normal Range, Critical Range, and the range of instrument linearity (if defined) are all shown. When you've seen all you need, select **Continue.** SchuyLab returns to the View Results screen.

When you're finished viewing the results, select either **F9. Cancel** or **F10. Done.** Either one will return you to the Patient Processing menu screen; since nothing can be changed in the View Results screen, there's no danger of accidentally saving an erroneous entry or deleting a valid one.

Printing Reports

There are several ways of printing a patient's report. Reports may be printed with some or all test results pending (a *preliminary* report), or with all the results accepted (a *final* report). You can print a single report, or a batch of reports; if you print a single report, it won't be removed from the batch file unless your lab has specified that option (which most labs do).

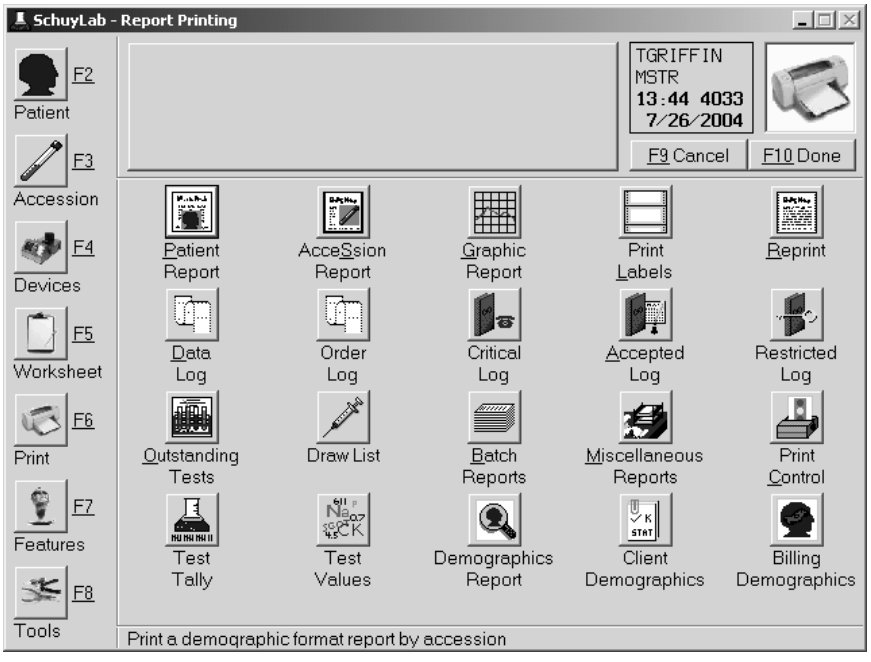
Printing a single report is generally done from the Patient Processing Screen. The other print functions are accessible through **F6. Print.**

Patient Reports

From the Patient Processing screen: Select Print Results. SchuyLab prints a report in the default format your lab has selected, for the patient whose nameplate appears at the top of the screen. If your system has several print queues, you can select the printer that will print the report.

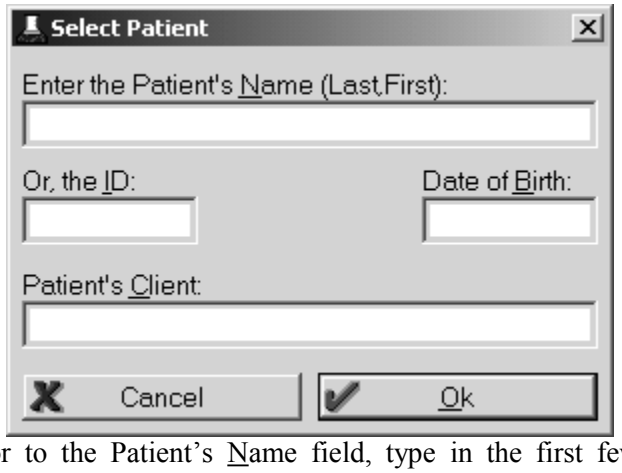
From anywhere else: Select F6. Print. SchuyLab displays the Report Printing menu screen.

The Report Printing Menu Screen



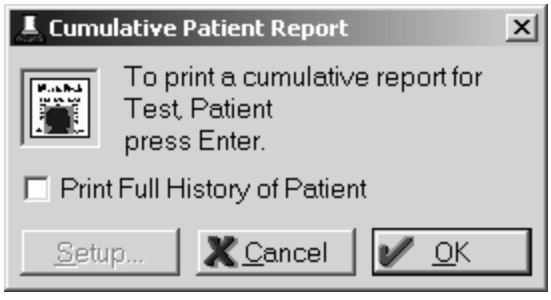
Patient Report: Select Patient Report to print out a cumulative report of the data available on the selected patient, even if your lab has opted for specimen-style reports as their default format.

From the Report Printing menu screen, select **Patient Report.** SchuyLab displays the Select Patient box.



Move the cursor to the Patient's Name field, type in the first few letters of the patient's name and press Enter. SchuyLab displays a list of patients whose names

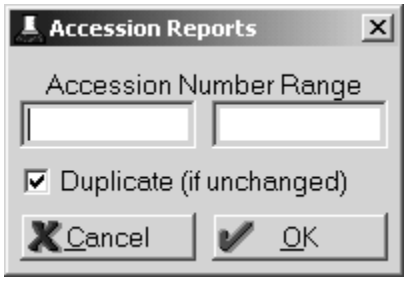
begin with those letters. Select the correct patient from the list. SchuyLab displays the Cumulative Patient Report box.



If you simply press Enter (or the **OK** button), SchuyLab prints a single-page cumulative report, showing the most recent specimens (four to eight, depending on format). If you check the box labeled "Print Full History of Patient" before doing so, however, SchuyLab prints a report on ***all*** the active specimens for the patient.

AcceSsion Report: Select AcceSsion Report to print out a series of specimen style reports, even if your lab has opted for cumulative reports as their default format.

From the Report Printing menu screen, select **AcceSsion Report.** SchuyLab displays the Accession Reports box.



Type the range of Accession numbers in the field and select **OK** (or press Enter). SchuyLab prints a separate report of test results for each Accession.

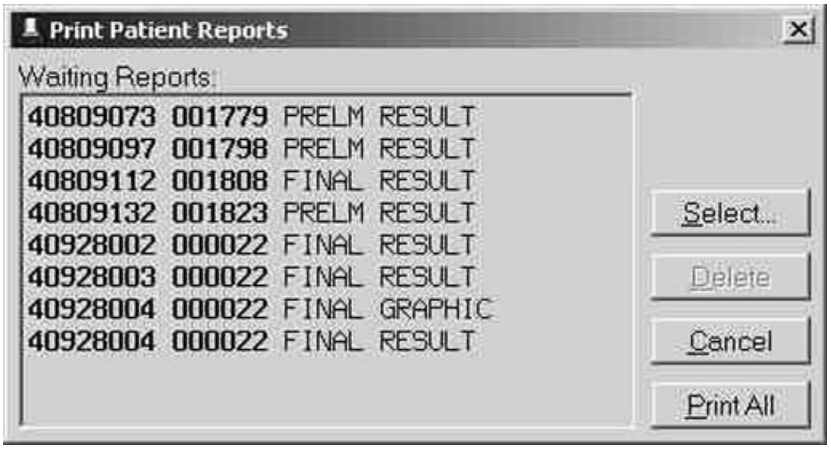
Print Patient Report Quick List	
From Patient Processing:	**From F6. Print:**
1. Select Print Report 2. SchuyLab prints a (default format) report on the patient	1. Select Patient Report 2. Enter or select patient name 3. SchuyLab prints a cumulative report on the patient

Batch Reports

While printing a single report is all well and good, you will generally prefer to print all your reports at one time ... probably at the end of the day, after results have been accepted. And naturally, you'd prefer to push only one button to get all these reports to print. Batch Printing comes close.

To print a batch of reports:
Select **F6. Print.** SchuyLab displays the Report Printing menu screen.

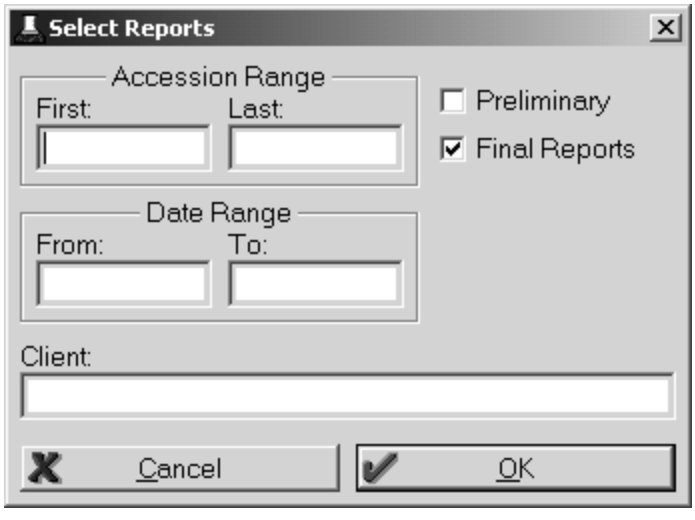
Select **Batch Reports.** SchuyLab displays the Print Patient Reports box.



The Print Patient Reports box lists all the patients with accepted or annotated/revised results which have not yet been printed. The type of report (preliminary or final) is noted alongside each individual report entry as is what kind of report it is (result or graphic).

To batch-print reports: There are three ways to print your reports. One way is to highlight one or more reports and select **Print** to print the selected reports, or select **Print All** to print ***all*** the test results on the list from the first screen.

Secondly, you may wish to print only a certain range of reports, or otherwise qualify the selection (without individually highlighting the reports you want). In that case, select **Select.** SchuyLab displays the Select Reports box.



Enter the search criteria, which may be any combination of the following:

- select a range of Accession numbers, or a range of dates (All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.);
- select Preliminary or Final Reports (at least one!), or both;
- select a specific client whose patients you want reported.

Then select **OK.** SchuyLab returns to the Print Patient Reports box, with the specified reports highlighted. Select **Print** to print, or **Cancel** to cancel.

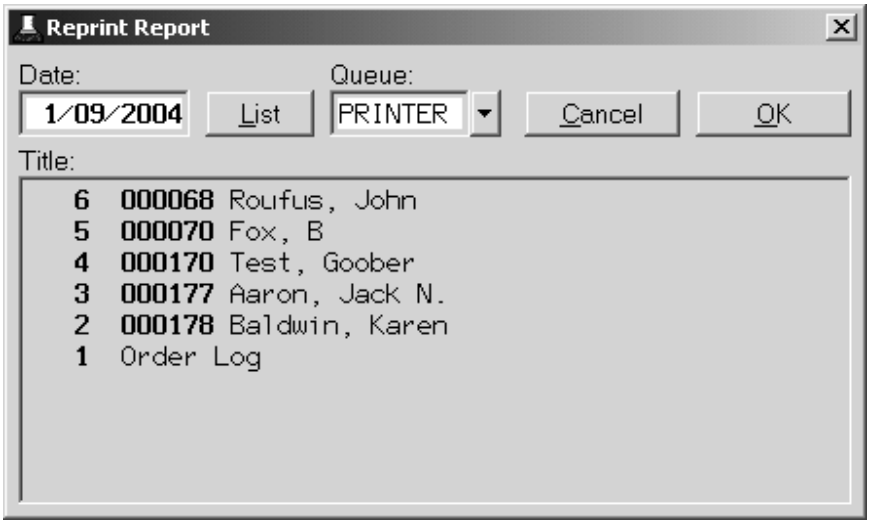
The third way is to select the Print All button on the first screen. This will select and print all reports (preliminary and final) in the list.

To delete reports: Highlight one or more reports and select **Delete.** SchuyLab removes it from the Print Patient Reports list. (Printing a report via the Print Patient Reports box will delete it from the list automatically.)

Print Control Functions

CLIA requires that the lab have available a copy of the original result printed out for the doctor. And for many labs that creates a problem as storage is at a premium. SchuyLab will store that "original" for you on the hard drive, in fact SchuyLab makes a copy of everything you have printed, including worksheets and log files. You can then at a later date access these reports through the Report Printing menu. The Report Printing menu screen has two icons that control the actual printing operations of the system. One is the **Reprint** icon, and the other is the **Print Control** icon.

Reprint: To reprint a report that has already been printed, select Reprint. SchuyLab displays the Reprint Report box, listing all the reports that have been printed that day, latest report at the top.



Highlight the report(s) you wish to reprint. From the Queue list box, select the printer queue you wish to print on (the default queue will be displayed initially). Then select **OK.** SchuyLab reprints those reports, exactly as they were first printed.

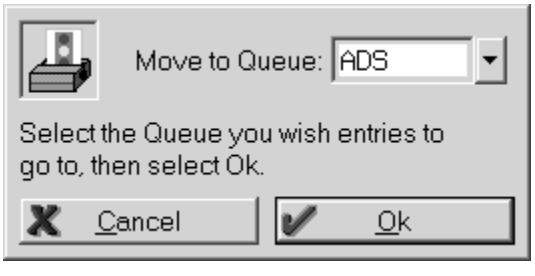
To reprint a report that had been printed on a previous day, type the date the report was printed in the Date field, then select the **List** button. SchuyLab lists all the reports printed on that date, latest report at the top. Again, highlight the reports you want, then select **OK.** SchuyLab reprints those reports, exactly as they were first printed. (The value of this is apparent when the report includes something like "date printed". The Reprint feature reprints the report with its original date, not today's date.)

Print Control: To see what's currently in the printer queue (that is, the reports waiting to be sent to the printer), select Print Control. SchuyLab displays the Print Control box.

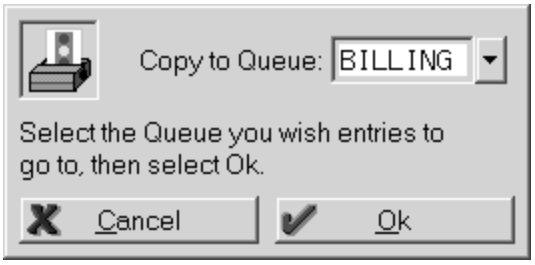
The Queue field shows the default queue for your system; the large area lists the reports waiting in that queue. To see what's in another queue (if your system has more than one printer), select that queue from the Queue pull-down list.

To make changes to print jobs in a queue, highlight the reports you wish to change. The 'grayed' buttons labeled **Copy, Move** and **Delete** will become active.

- If you wish to simply not print those reports, select **Delete.** SchuyLab deletes them from the printing queue; those reports will now not print.
- If you wish to move the print job to another printer, select **Move** (if you want this print job to print on another printer) or



- **Copy** (if you also wish it to print on the current printer as well). SchuyLab displays a dialog box, asking which queue you wish to Copy/Move to.



Choose the appropriate new queue from the pull-down list, then select **Ok.** SchuyLab returns to the Print Control box, with the printing jobs moved or copied.

When done with Print Control, select **OK.** SchuyLab returns to the Report Printing Menu Screen.

Reports for Record Comparison

In addition to the patient reports, there are some reports that should be printed on a daily basis. These reports are useful for keeping track of requisitions: they permit comparison between what was ordered, what was accepted, and what remains pending for that day. The reports are the Data Log, the Order Log, the Accepted Log, and the Outstanding Tests log. All of these reports are accessed through **F6. Print,** the Report Printing menu screen.

Data Log: This is a condensed format log of all the patients, tests, and results, by Accession range. It lists individual tests: that is, if a CBC was ordered on Accession #10001, the Data Log will show that Accession with a WBC, RBC, Hemoglobin, &c, along with any accepted results.

Order Log: This is a log, by Accession range, of the tests ordered on each patient, in the arrangement that the doctor ordered them. That is, if a CBC was ordered on Accession #10001, the Order Log will show that Accession with a CBC, not the individual tests therein.

Accepted Log: This is a log, in condensed format, of all patients, tests, and results that have been entered into the system since you last selected this option. Because no Accession range may be specified, the Accepted Log must be printed regularly, preferably daily.

Outstanding Tests: This is a log, by Accession range, of the tests whose results are pending. For any given period, the Outstanding Tests log plus the Accepted Log should equal the Order Log (or the Data Log).

The procedures for printing these reports are detailed in Section 8: Reports and Printing. Again, we emphasize that, in an ideal laboratory, these reports will be printed every day.

Additionally, there is a report you may need to print on a daily basis, depending on the type of work your lab performs. This is the Restricted Log.

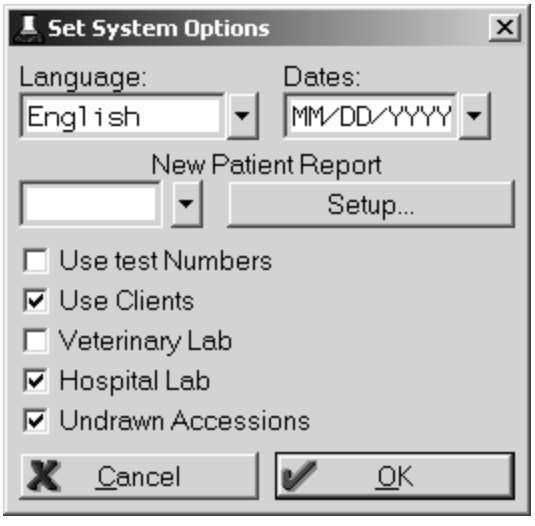
Restricted Log: This is a log of all tests whose results are marked as "restricted". These tests do not print out on the other logs. Only users with the proper security clearance can access this function.

Print Reports Quick List		
To print a report (general):	**To print a batch report:**	**To reprint a report:**
1. Push **F6** 2. Select a report icon 3. Enter a AcceSsion number, range, or name, if necessary 4. SchuyLab prints out a report in that format	1. Push **F6** 2. Select **Batch Report** 3. Select **Print All** to print all the accepted test results since the last batch report	1. Push F6 2. Select Reprint. SchuyLab displays list of reports 3. Enter the date of the report you want to reprint 4. Select the report you wish to print

Enhanced Functions for Hospital Labs or Large Medical Groups

Many of the additions to SchuyLab were designed for these groups, including capabilities for interfacing to HIS or OIS software. We now have a working and adaptable HL7 interface, a growing standard in the field of Electronic Medical Records. However, in addition to these Information System developments, many new features allow for more Demographics information and a more comprehensive Draw List Report.
The following changes are only available to Labs with the **Hospital Lab** configuration. To update your configuration, follow the following steps:
Go to **F8: Tools,**

Set-Up,
PArameter ID Definition,
Optional Processing.

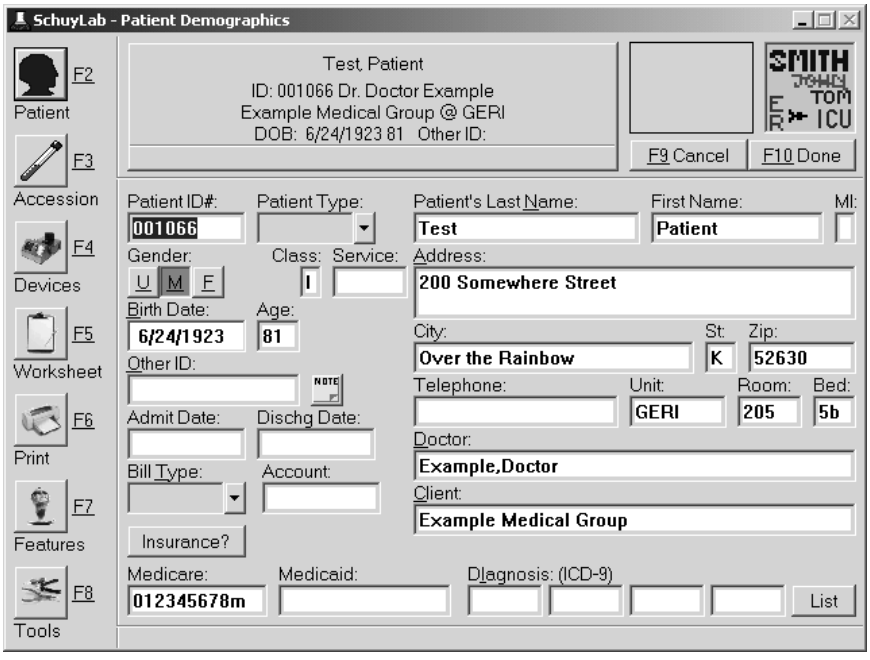


Place a check in the **Hospital Lab** option. If you would like to make use of the **Draw List Report** described in Sec. 7, Reports and Printing, you must also place a check in the **Undrawn Accessions** option.

Once you have made these changes, you will need to exit out of SchuyLab and sign back in. The following improvements will then be available to you.

New Demographics Information

Now when you view **Change Demographic** in the **Patient Processing** screen, you will notice several new fields. Here is a picture of the new Patient Demographics screen:



The **Location:** field is now listed as **Unit:** and has been moved. This can be used to describe a Nursing Unit or facility within the Hospital. For instance, this patient is part of the Geriatric Center of the Example Medical Group. In addition, four more fields—**Room:**, **Bed:**, **Class:**, and **Service:**—have been added to allow you to further designate where the patient is staying in your building as well as what type of services the Patient is receiving.

Class: is a single character field and was added for Hospital Information System interfaces. When using HL7 (the interface that most HIS's use), there are only three options that are used: I (In-Patient), O (Out-Patient), and E (Emergency Room). However, if you don't use an HL7 interface or plan to ever in the future, the **Class:** field can be used to designate other classes of Patients like Home Health, etc.

Service: field can store up to six characters and can be used to determine if the patient is being seen for Orthopedic Surgery, Physical Rehabilitation, etc.

Also, an **Admit Date:** and a **Dischg Date:** field have been added to record whether the patient is currently checked into your facility, or during what time period they received In Patient services from you.

How can these changes be used to enhance the services of your Medical Group? Well, in addition to the ability to store this extra information, your Specimen and Patient Reports can be configured to print this information as Demographics. Also, the **Location:** or **Unit:** field can now be linked to a Printer Queue. In previous versions, if you wanted to have ER patient reports print automatically to the Emergency Room and ONC patient reports print to the Oncology Ward, you would have to configure two separate Clients—"Example Medical Group – ER" and

"Example Medical Group – Oncology". Now with SchuyLab, you only have to set up the one "Example Medical Group" client, and setup each Location you would like a report to print to. Sec. 7, Reports and Printing goes into deeper detail on how to set this up.

Setting up your Tests

When you order tests in SchuyLab, the system displays a screen with buttons for the tests and panels available to you. Schuyler House personnel configure this screen to the requirements of your facility during initial set-up. As your instrumentation and requirements change, you may want to alter this screen to meet your new needs.

The first step is to define your lab's tests: all the other processes depend on tests. Once you've defined your tests, arrange them into panels. The tests and panels you develop constitute the Order Tests screens that you use in your daily work. A test may belong to more than one panel (for instance, Cholesterol may appear in your Chem 18 panel, your Lipids panel, and your Cardiac Profile panel).

The following sections, listed below, describe, in order, the steps by which you'll establish tests in SchuyLab:

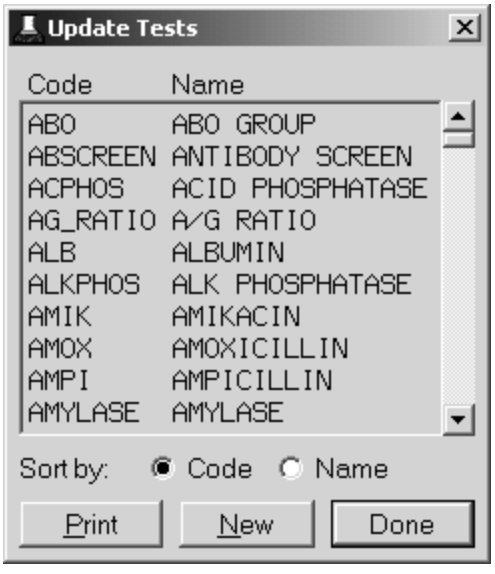
1. Test Definition
2. Panel Definition
3. Screen Definition
4. Alias Definition
5. Print Group Definition
6. Configuring the Online Interface

Test Definition

You must define your tests before you initiate any of the other processes that depend upon them. Test definitions are the building blocks to customize your system.

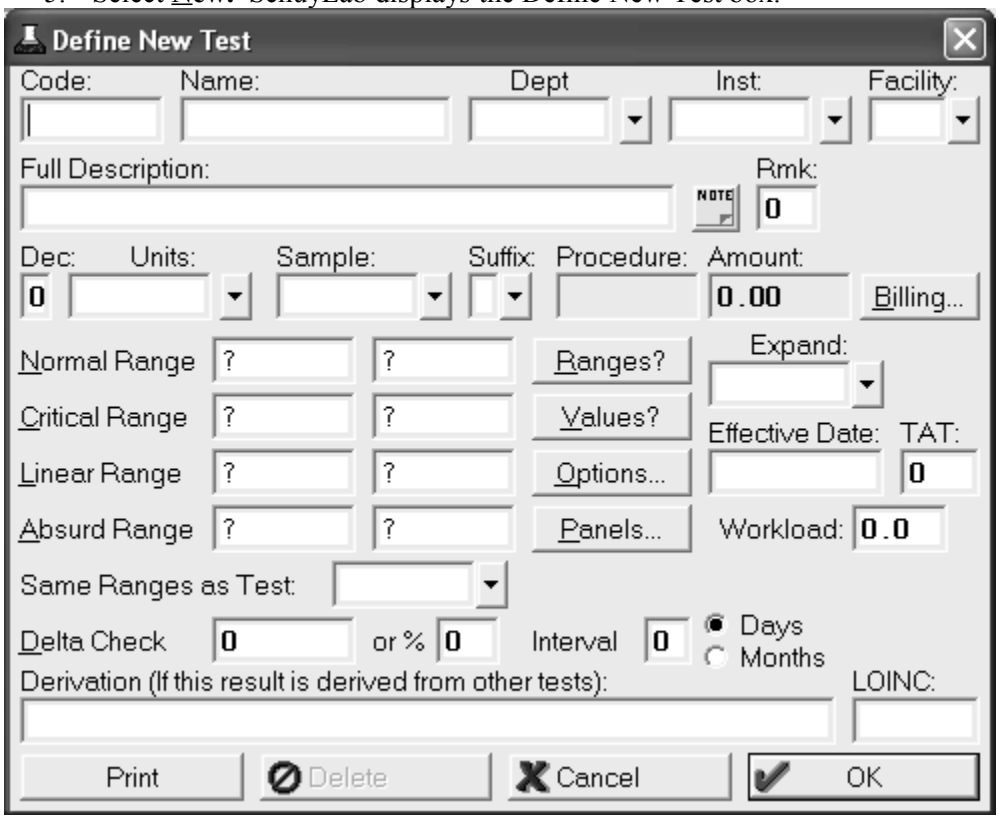
To define a new test:

1. Select **F8. Tools.** SchuyLab displays the System Tools menu.
2. Select **Set-Up.** SchuyLab displays the Setup menu.
3. Select **Test & Panel Definition.** SchuyLab displays the Define Tests menu.
4. Select **Test Definition.** SchuyLab displays the Update Tests box, listing the existing tests.



Each test has a test code, up to eight characters long -- which appears on the buttons in the Order Tests screen -- and a test name to be printed on the patient's report. By default, the Update Tests box sorts the tests by code, in alphabetical order; if you wish to sort tests by their names, select the Name button at the bottom of the Update Tests box.

5. Select **New.** SchuyLab displays the Define New Test box.



Complete the fields following the guidelines below, using the mouse or the Tab key to advance through the fields.

Code: The test code appears on the button in the Order Tests screen and in the Enter Results screen. Type up to eight characters for the test code; for best results, use ***only*** letters, numbers, and the underline "_" character. You may not duplicate another test code or panel code.

Name: The test name is printed on the patient report. Type up to 16 characters for the test name. You may use letters, numbers and characters.

Dept: Pull down the scroll list box and select the department or area for the test (e.g., Chem, Hemo). Or type the name of a new department, if the current list doesn't include it.

Inst: (optional) Pull down the scroll list box and select the instrument that performs the test (e.g., Coulter, Demand). Or type the name of a new instrument, if the current list doesn't include it.

Facility (optional) If some of the tests you have in this list are facility specific, a list of facility names are in the pull down box and they can be marked for that specific lab (you must have the Multi Facility module). Likewise, this can also be used for reference lab tests. For more information see the sections on Multi-Facility and Reference Labs in Appendix.

Full Description (optional) Type the complete test name. This is usually for your internal documentation, but some reports print the Full Description routinely.

Note (optional) Select the yellow notepad to record notes or user comments concerning the test. This is where you would type a message to print out each time this test is reported.

Dec: Type the number of decimal places in which to express the test results. The default is zero (0).

Units: Pull down the scroll list box. SchuyLab will display a list of different forms of units. Select the appropriate units for this test and SchuyLab displays the units in the box next to the arrow. If you can not locate the unit you want to use, you can type in the units in the blank spot at the top of the pull down list.

Sample Many labs, as they grow larger, turn to automation to process more specimens. You can dictate the specimen type needed for each test by choosing from the list in the pull down box. This will add a letter suffix to the back of the accession number (i.e. 0112060152S) to indicate which label goes on which tube (S = Serum). At present, choices are: W BLOOD, SERUM, URINE, PLASMA, CSF.

Suffix This is the field to use when you're running a given test on multiple samples of the same type

Expand If this test is a trigger test (more about trigger tests further in this section), this is where you tie it to the panel you choose to expand it to.

TAT: Turn Around Time. The TAT is the measurement of the interval between two designated points in the processing of a specimen that is used to measure the efficiency of laboratory.

Procedure: Type in a unique procedure code number (e.g., the CPT code) to enable this test to be reported and priced on the various demographics reports. (If your system has the SchuyLab Billing Module installed, the Procedure field will be a read-only window; you'll enter the procedure number through the **Billing** button, described below.)

Amount: Type in a dollar amount for this test, to be reported and priced on the various demographics reports. (If your system has the SchuyLab Billing Module installed, the Amount field will be a read-only window; you'll enter the price through the **Billing** button, described below. Only one price can be entered in the standard system.)

Billing... This button is active only on systems with the Billing Module installed. Selecting this button permits you to define procedure codes and prices, according to the different schedules defined in Billing. For more information, consult the SchuyLab Billing Manual.

Rmk: Type in the number of a defined Remark Code appropriate to this test. This comment will then print out each time this test is reported.

Workload: *This feature is not yet completed.*

Normal Ranges Enter the normal ranges for this test. This would be the lowest possible number (or the normal value) to the highest. Anything below or over these ranges would then be considered Abnormal by SchuyLab and be reported as such. If the "normal" is a word (i.e. Negative), it can be placed in either box and most other words used would be considered abnormal.

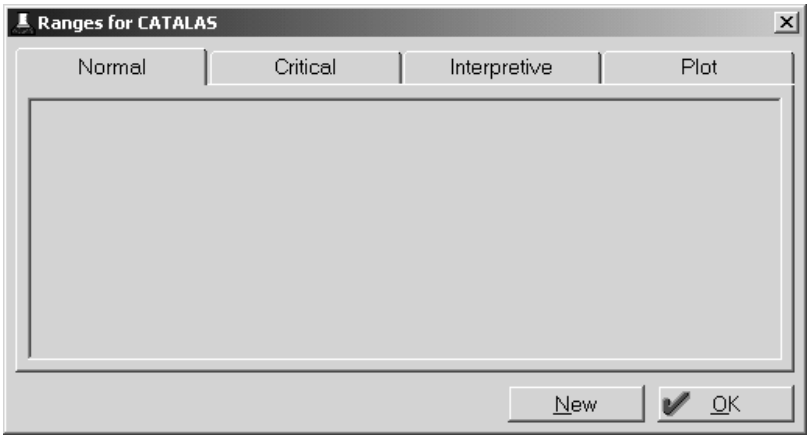
Critical Ranges Also known as Panic Values.

Linear Range Type the low and high values given by the instrument manufacturer for the linear range of the test methodology and particular instrument. If you switch to a different methodology, even on the same instrument, you must update this range. This range also appears in the information box on the Enter Results screens, as some instruments send out results beyond their linear range; it does not appear on the patient report.

Absurd Range This represents a range beyond which the likelihood of entry error is high. For example, a K of 5.0 is Normal, a K of 6.0 is Critical, a K of 16.0 is above Linearity, and a K of 50.0 is Absurd (the tech probably meant to type "5.0", not "50").

Ranges... Select **Ranges** to set detailed ranges for ranges that differiate with gender, age, and patient type or Critical Ranges, Interpretive ranges. SchuyLab displays the Ranges for [Test name] box.

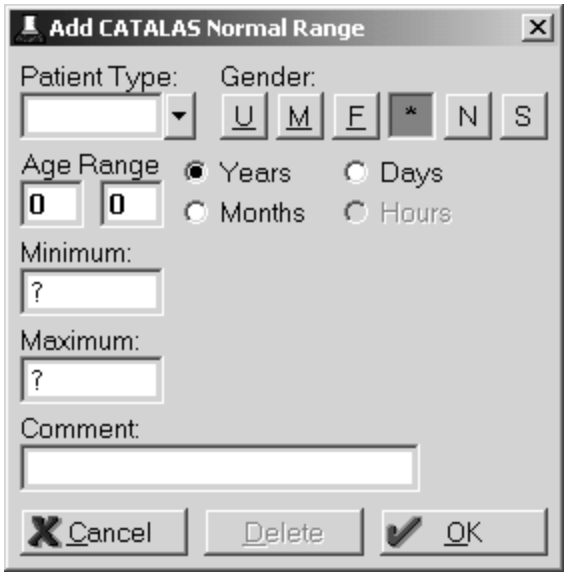
The Ranges Box



To add a new normal value range

Normal ranges can be different between men and women as in the RBC test or even, between ages as in child versus adult. In these tests, you can set the parameters that SchuyLab will then report out.

1. Select the Normal tab.
2. Select **New.** SchuyLab displays the Add Range box.

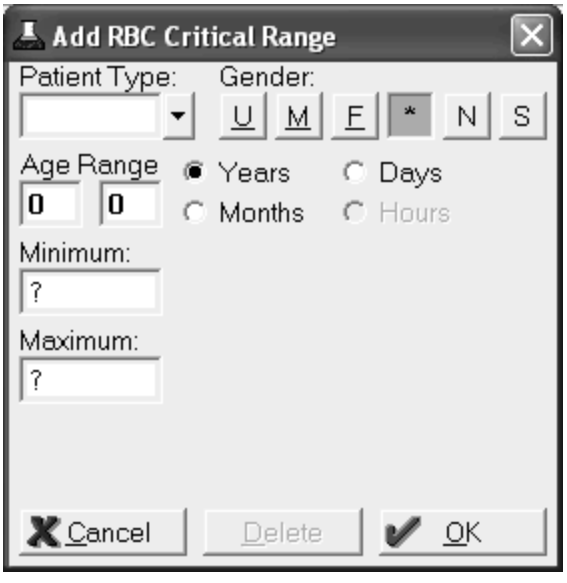


3. Select the specific characteristic(s) for the range you want to enter. You can define the range by Patient Type, if they're defined for your system, Gender (Unknown, Male, Female, or * for both), Age Range, or a combination of the above.
4. Type the low (Minimum) and high (Maximum) values for the selected characteristics. Type in a comment, in the Comment area, if you wish to have one associated with this range.
5. Select **OK.** SchuyLab displays the new range in the Ranges box.
6. Select **New** again to enter another range.
7. When you have entered all the ranges for that test, select **OK.**

To add a new critical value range

Much like the normal ranges, the critical ranges for tests can also be set up for specific parameters.

1. Select the Critical tab.
2. Select **New.** SchuyLab displays the Add Range box.



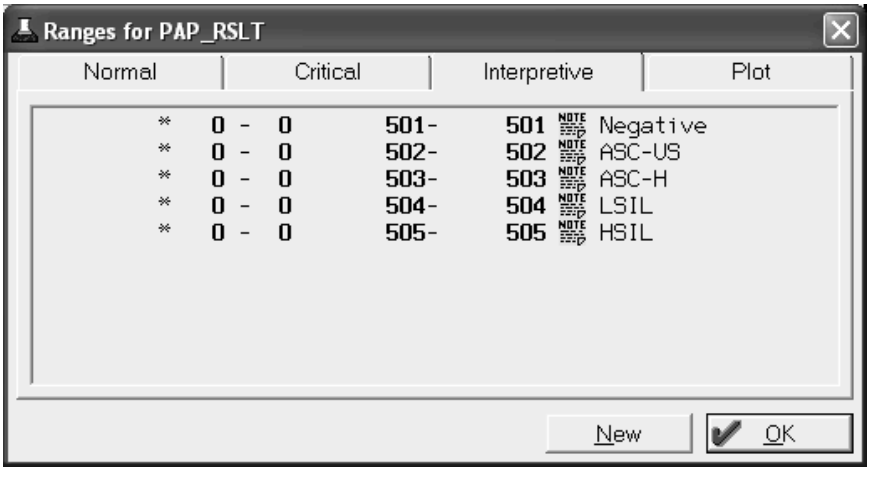
3. Select the specific characteristic(s) for the range you want to enter. You can define the range by Patient Type, if they're defined for your system, Gender (Unknown, Male, Female, or * for both), Age Range, or a combination of the above.
4. Type the low (Minimum) and high (Maximum) values for the selected characteristics.
5. Select **OK.** SchuyLab displays the new range in the Ranges box.
6. Select **New** again to enter another range.
7. When you have entered all the ranges for that test, select **OK.**

To add a new interpretive value range

Interpretive ranges can be set up for a variety of tests. Many test, such as HIV, Rubella or Hepatitis, has a reportable result of Negative or Positive. But your instrument may send a numbered value to SchuyLab. In this case, you need to set up the interpretive ranges that any value from one number to this number is reported as Negative, etc.

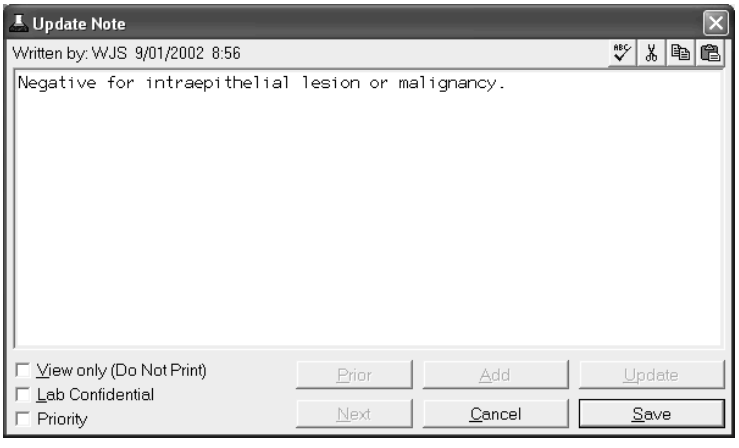
Likewise, if your lab is performing Cytology tests, you can also set up many results to print out extensive notes on those results (for more information on Cytology tests and reporting see the Cytology section in the Appendix).

1. Select the interpretive tab. SchuyLab displays the Range box for the specific test. As you can see from this example, we have already set up a number of interpretive results. As interpretive ranges can be confusing, let's assume that none of these exist and we are creating from new.
2. Select **New.**



3. Select the specific characteristic(s) for the range you want to enter. You can define the range by Patient Type, if they're defined for your system, Gender (Unknown, Male, Female, or * for both), Age Range, or a combination of the above.

4. Type the low (Minimum) and high (Maximum) values for the selected characteristics and how this range is to be reported out. In this case, we are using 501 as both values. To get the appropriate note to print with this result, click on the yellow note pad and type it in.

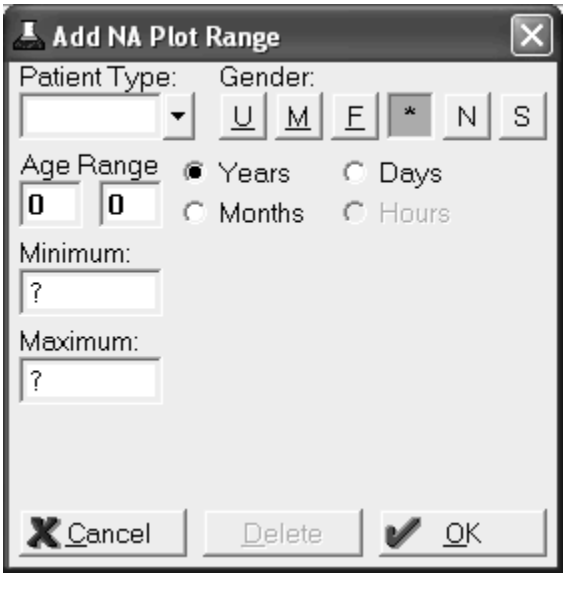


5. Select **Save.**
6. Select **OK.** SchuyLab displays the new range in the Ranges box.
7. Select **New** again to enter another range.
8. When you have entered all the ranges for that test, select **OK.**

To add a new plot value

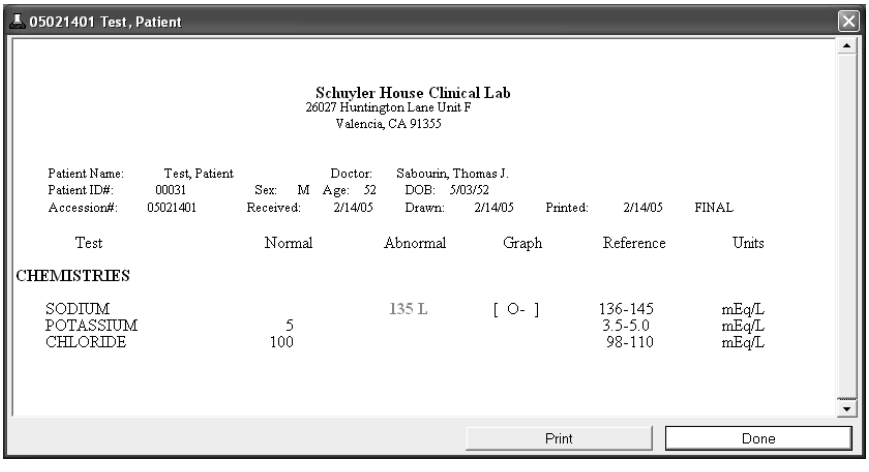
First, what is a plot value range? A plot range will print where the patient's result fall within the middle of the reference ranges. For example, the normal ranges for NA are 135 – 145 mEq/l and we will set our plot for between 120 and 160.

1. Select the Plot tab.
2. Select **New.** SchuyLab displays the Add [TEST] Plot Range box.



3. Select the specific characteristic(s) for the range you want to enter. You can define the range by Patient Type, if they're defined for your system, Gender (Unknown, Male, Female, or * for both), Age Range, or a combination of the above.
4. Type the low (Minimum) and high (Maximum) values for the selected characteristics.
5. Select **OK.** SchuyLab displays the new range in the Ranges box.
6. Select **New** again to enter another range.
7. When you have entered all the ranges for that test, select **OK.**

To have the plot print on the result form you will need to add a space for it on the result form. Go to **F8:Tools, Setup, Report Setup, Patient Report, Accession Report, Setup, Results** and add a column for **Result Graph.** You can place the graph anywhere on the report (before or after the results for instance). When you print out the result report it will look similar to this:


05021401 Test, Patient
Schuyler House Clinical Lab
26027 Huntington Lane Unit F
Valencia, CA 91355
Patient Name: Test, Patient Doctor: Sabourin, Thomas J.
Patient ID#: 00031 Sex: M Age: 52 DOB: 5/03/52
Accession#: 05021401 Received: 2/14/05 Drawn: 2/14/05 Printed: 2/14/05 FINAL
Test Normal Abnormal Graph Reference Units
CHEMISTRIES
SODIUM 135 L [O-] 136-145 mEq/L
POTASSIUM 5 3.5-5.0 mEq/L
CHLORIDE 100 98-110 mEq/L
Print
Done

The "O" on the graph shows where the results are to the middle of the plot range we set.

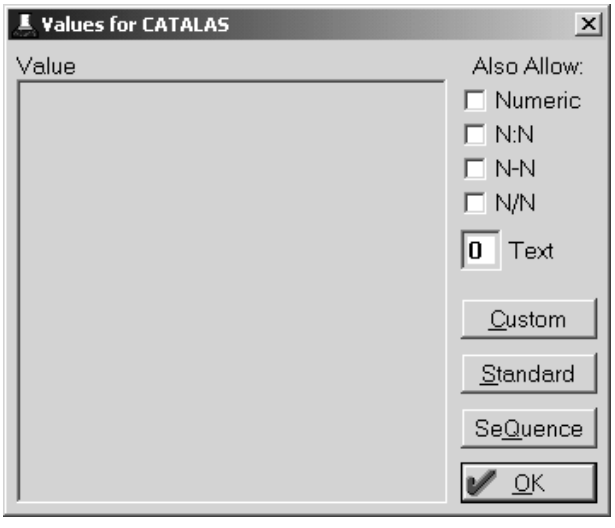
To update a range that's already defined

Select the range in the Ranges for [Test name] box. SchuyLab displays the Update Range box. Select the heading to update and then make the necessary changes and select **OK.** SchuyLab returns to the Define New Test box.

Values... To set non-numeric results ("pos", "neg", "yellow", etc..) for the test, select **Values.** SchuyLab displays the Values Box. Once values have been selected, they may be entered as ranges and used as patient results.

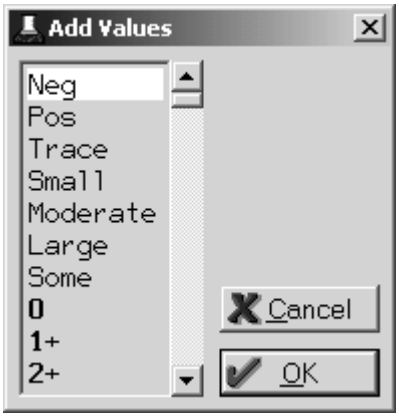
1. Select **Values.** SchuyLab displays the Values for [Test name] box.

The Values Box



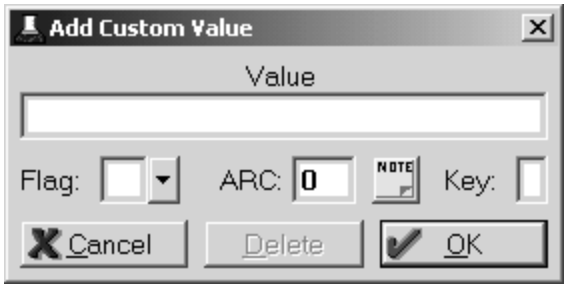
2. To add new values to the list of authorized responses, select **Standard.** SchuyLab displays the Add Values box. Multi-select the values you want to add to the test.

The Add Values Box



3. When you have highlighted all the new values, select **OK.** SchuyLab returns you to the Values for [Test name] box, and displays the values you have selected as a list in that box.

4. If the test value you need is not on the standard list, you can create your own custom values. To do this, select **Custom.** SchuyLab displays the Add Custom Value box. In the Value field, type the test value you wish to create. Select **OK. Note: If your lab makes extensive use of Cumulative Reports, we strongly recommend using only values from the Standard list as Custom values do not print on Cumulative Reports due to space.**

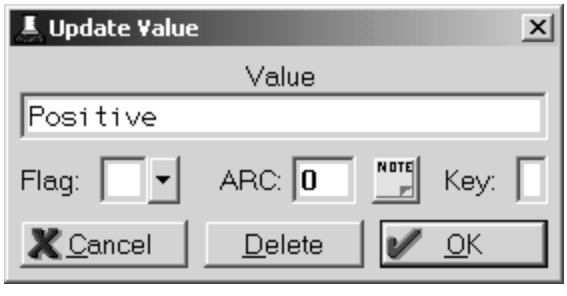


5. If you have selected non-numeric values, but still wish to accept numeric results for that test, select the Numeric check box. (That is, if you want to be able to accept either "trace" or "5" as a valid result, select the Numeric check box before adding "trace" as a test value.) Or, if you wish to accept ratios or ranges as results, select the box labeled "N:N", N-N", or "N/N", as appropriate.

6. For Microbiology tests, and some other tests, the test result may be longer than the eight-character maximum in the standard Add Values list. For those tests, you can define the test to be a free-form text value. To do this, in the box labeled "Text", type in the length of text (maximum of 32 characters) you want the result to be. (Note that choosing a value in the Text box overrides any selection from the Add Values list and can not be flagged as an abnormal.)

7. To add a result code, note, key stroke, or flag to a value, or to delete a value, select that value from the list displayed in the Values for [Test name] box. SchuyLab displays the Update Value box.

The Update Value Box

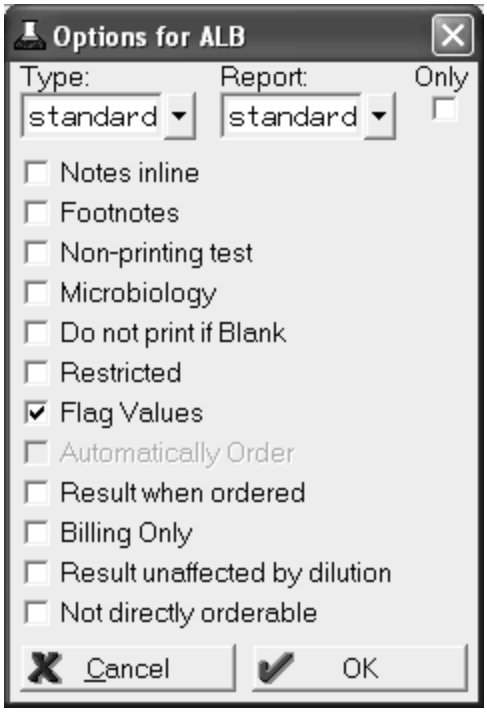


- To delete the value, select **Delete.**
- To link that value with a remark code, type the number of that code in the space labeled ARC. If so designated, that code will print out on the report each time that value is selected as a test result.
- To print a message each time that value occurs as a test result, select the note icon in this box, and type your message.
- To enable this value to be entered by typing a single keystroke, enter that keystroke in the Key field. (Be careful in choosing your keystroke: for instance, if you choose "N", that letter won't be available for "Negative" or "None".)

- To flag your value and print it in a contrasting color (or bold for laser printers), select one of the values in the listbox labeled "Flag".
  L = low/blue
  H = high/red
  CL = critical low/blue
  CH = critical high/red
  < = less than/blue
  > = greater than/red
  a = (abnormal)/purple (color only; no letter flag)
  A = abnormal/purple
- To flag your value and print it in a contrasting color (or bold for laser printers), select one of the values in the listbox labeled "Flag".
  L = low/blue
  H = high/red
  CL = critical low/blue
  CH = critical high/red
  < = less than/blue
  > = greater than/red
  a = (abnormal)/purple (color only; no letter flag)
  A = abnormal/purple

8. When you have made all the specifications, select OK. SchuyLab returns to the Add Values box. To annotate another value, select it from the picklist and continue as above. When you are done, select OK. SchuyLab returns you to the Update Test [Test Name] box.

Options... Select **Options** to control how test results are accessed, displayed and printed. SchuyLab displays the Options for [Test Name] box.



In the scroll bar labeled "Type", select "standard" unless the test is for Microbiology, Cytology or Allergens. In those cases, select "Culture", Isolate", etc. as appropriate.

In the scroll box labeled "Report", select "standard".

- To be able to report out test results using both the graphic and the standard report format, leave the checkbox labeled "Only" unchecked. (If you wish to use ***just one*** kind of report, select that type of report and check the "Only" checkbox.)

Footnotes - causes notes on this test to print as footnotes at the bottom of the printing group (in Specimen format reports). Notes print by default immediately after the test results they annotate. (Notes will ***always*** print as footnotes on Cumulative reports.)

Non-printing test - configures this test as one which does not print out on any report such as part of a calculation or for billing purposes only.

Microbiology - denotes this test as a Microbiology test, accessing Microbiology result codes. (Specimen report format only)

Do not print if blank - configures this test so that, should the test results be blank (or if the space key is hit and then that "result" is accepted), the test will not print out.

Restricted - suppresses viewing and printing for all users without the proper security clearance.

Flag Values - labels results outside normal and within critical ranges.

Automatically Order - active only for calculated tests. When a calculation is typed in the "Derivation" field (as described below), this box becomes active, with a check in the box: the calculated test is then automatically ordered whenever its component tests are ordered. To stop this, and require the calculated test to be explicitly ordered, remove the check mark.

Result when ordered - requires the user to enter a result as soon as the test is ordered. (For instance, "Urine Volume" might be needed to calculate other tests; it can be entered when the tests are ordered.)

Billing Only – A Billing Only test doesn't require a result; once ordered, it's immediately "done" (i.e. not pending) and can show up on invoices, etc. A Billing Only test could be a charge for a blood draw, a STAT test or a house visit. In this case, you would create a test called DRAW (STAT, HOUSE, etc.) and mark it as a Billing Only AND also select the "Non-Printing Test" option test. This way it would not print on the patients results form, but would show up on the billing side as a charge. A Billing Only test will print out on the patient's results unless otherwise marked.

Result unaffected by dilution - Screening tests, such as Hepatitis, usually use test results as Positive or Negative. Sometimes your instrument gives a numerical result that has to be interpreted, and we don't want the results skewed by a dilution factor.

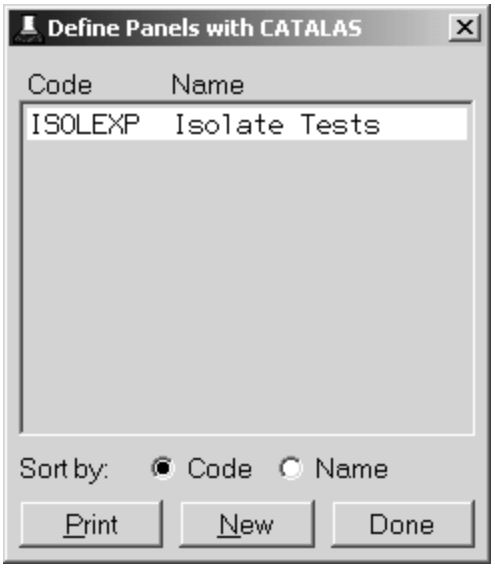
Note that this option is rarely used with today's modern instruments

Not directly orderable – Any test with this box marked, will not show up on the test list under Screen Definitions or in the picklist in the Free Text ordering. This test will still be ordered if it is part of a panel.

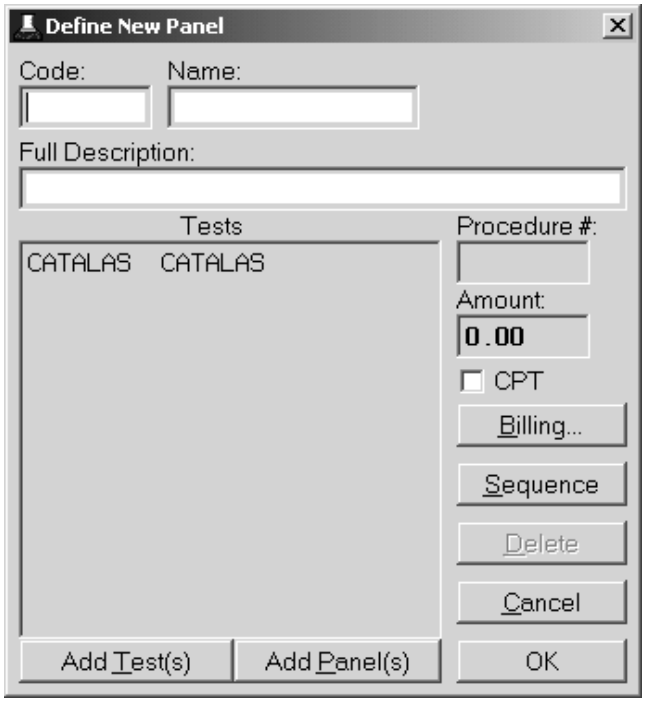
SchuyLab displays a check mark on the options you have chosen.

When you have selected all the appropriate options, select **OK.** SchuyLab returns to the Update Test [Test Name] box.

Panels... Select **Panels** to include the test as part of any panels, or to see which panels include this test. SchuyLab displays the Define Panels with [Test Name] box.



If the test is already part of one (or more) of your panels, those panels will be listed here. If you wish to now define a new panel that will include this test, select New. SchuyLab displays the Define New Panel box.



The test will already be listed in the new panel. Add other tests and panels, as described below, and give the new panel a code and name. Select **OK** to return to the Define Panels with [Test Name] box.

When finished, select **Done**. SchuyLab returns to the Update Test [Test Name] box.

Same Ranges as Test Many tests, such in Allergy testing, use the same ranges as a single reference methodology (i.e."IgE"). Instead of creating or typing in the ranges for each test, you can let SchuyLab know this test using the same ranges as another test. You enter the test code of the first test by clicking on the arrow and scrolling down to the test or, simply typing in the test code. NOTE: The test you use as reference must come first in the test list.

Delta Check The normal variation between successive tests for a patient, expressed as a value or a percentage. If a patient's test results exceed this range, SchuyLab flags the results.

Interval The number of days within which the delta check is valid. If this number is left at "0", defaults to checking against the most recent result (or the last time this test was performed).

LOINC

LOINC (Logical Observation Identifiers, Names and Codes) is a public-use set of codes and names for electronic reporting and comparison of clinical laboratory test results. These codes are methodology-based, to allow for distinction between similar tests and/or comparison of identical tests. If you wish to use a LOINC code for a test, enter it in this field.

As an example, say you have two analyzers, both running LDH, but using different methodologies. Those LDH results should not be compared with each other; the tests would have different LOINC codes. On the other hand, you might have two tests with different names in SchuyLab but the same LOINC code: their results could be compared with each other, or plotted on the same graph.

Derivation

If the test is mathematically derived from other (measured) test information (e.g., A/G Ratio), type the formula to calculate the test result. The formula can use numbers, test codes, parentheses, and the symbols '+' (add), '-' (subtract), '*' (multiply), and '/' (divide). You can also use "^" to show raising to an exponent (necessary in calculating INR). Do not include a complete equation (that is, don't use the equals (=) sign). The test codes used in this field must ***exactly*** match the test codes defined in SchuyLab.

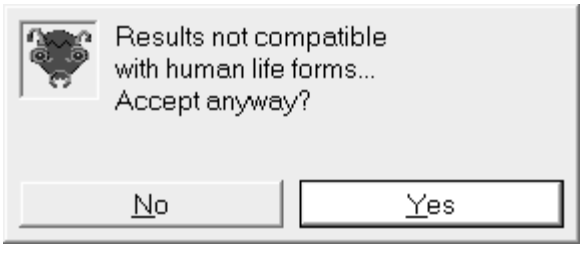
As an example, to set up the BUN/Crea ratio so that SchuyLab will calculate it automatically, find the codes for BUN and Creatinine -- presumably, "BUN" and "CREA". Then type "BUN/CREA" in the Derivation field for this test.

Effective Date:

After your lab has been using SchuyLab for a while, you may determine that your "normal" ranges need to be adjusted, or you may change instruments that have different ranges than you've been using. Instead of making a new test to reflect the range changes, by entering a date in this box, SchuyLab will begin using the new ranges, yet still reference the old ranges when necessary.

TAT: The Turn Around Time (TAT) is an interval between two designated points in the processing of a test. It is used in a clinical setting to measure the efficiency of the laboratory. The actual length of this time interval is compared to a target time that is placed on the individual test or globally set in SchuyLab, and a report is generated to show how frequently this target is achieved. The definition of the designated beginning and ending points is fluid, and may change within a facility as well as between facilities. It is generally used by a laboratory for two purposes: to troubleshoot internal processes or to document laboratory efficiency.

Absurd Range This will alert you to typing or entry errors that can sometimes occur, that are either outrageous or near impossible. For example, for some reason the Dimension is not transmitting over to SchuyLab and you need to enter the results manually. As you are working your way down the list on the patient, you misread the results and type in a value of "50" for the Potassium test. Normally this result would have been flagged as an abnormal high and you would have gone on to the next test. But that would be an impossible result for a Potassium and now you will be prompted by a message:



This message would also appear if you accepted a "?" as a result. NOTE: You will need to have values in the Absurd Ranges boxes for this to work. If there are no values, the Potassium of "50" would be flagged as a high abnormal.

6. Select **OK.** SchuyLab returns to the Update Tests box.
7. Select **Done.**

To Update a Test

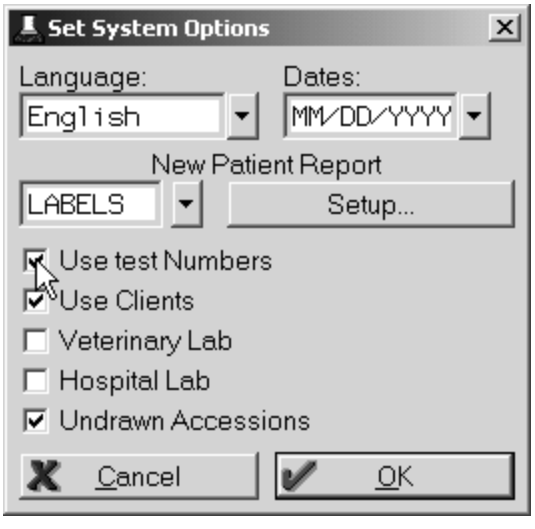
1. Select a test from the Update Test scroll box. SchuyLab displays the Update Test [Test name] box.
2. Alter fields, as required.
3. When you have finished your updates, select **OK.**
4. Select **Done.**

Using Test Numbers

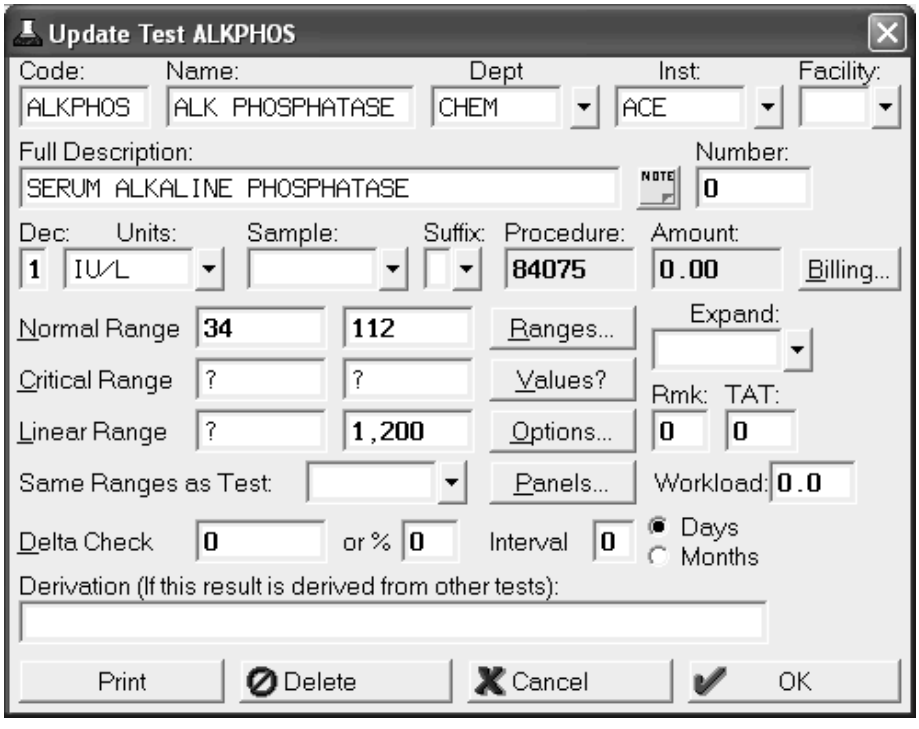
Although it is become more and more outmoded, some labs use a number code to identify the tests and panels they use. These numbers are NOT procedure or CPT code numbers, but numbers the lab has assigned each test or panel they perform. If your lab is one of those and wishes to continue using that method, SchuyLab has made it easier. The first step is telling SchuyLab that you will be using numbers as code;

Go to **F8: Tools**
Set-Up
PArameter ID Definition
Optional Processing

This will bring up the Select Systems Options box. Check the box for *Use test numbers*.



Now your SchuyLab is set up to accept numbers as a test or panel code. Next go to the Update Test Box and you can see the box in which to enter the test number.



Using Samples and Suffixes

Chemistry analyzers will usually permit a given test to be defined once. Thus, for instance, the test for Creatinine can only be defined once on a given analyzer. In reality, there are several tests for Creatinine – Serum Creatinine, Urine Creatinine, 24-hour Urine Creatinine – all of which have their own units and normal ranges, and all of which are defined as separate tests in SchuyLab. But the analyzer knows only a single test, Creatinine; it can only be ordered once on a given specimen.

Other examples might be the multiple Glucose tests for a Glucose Tolerance panel; morning and evening Cortisol levels; peak and trough Vancomycin levels; and so forth. In each case, we want all the tests ordered on a single accession, so the results can be on one report. They must therefore be defined as separate tests in SchuyLab, but somehow run as the same test on the analyzer – with the test results accepted in their proper places.

Until now, the only solution was to manually enter the results. With the new changes to Test Definition, it's possible to run barcoded samples on the analyzer and have the results be properly sorted in SchuyLab.

When the tests are now ordered, if the sample type or a specific suffix are part of the Test Definition, a letter is appended to the Accession ID for that test only. Barcodes

are then generated for each of the suffixed Accession IDs, in addition to the "base" Accession ID.

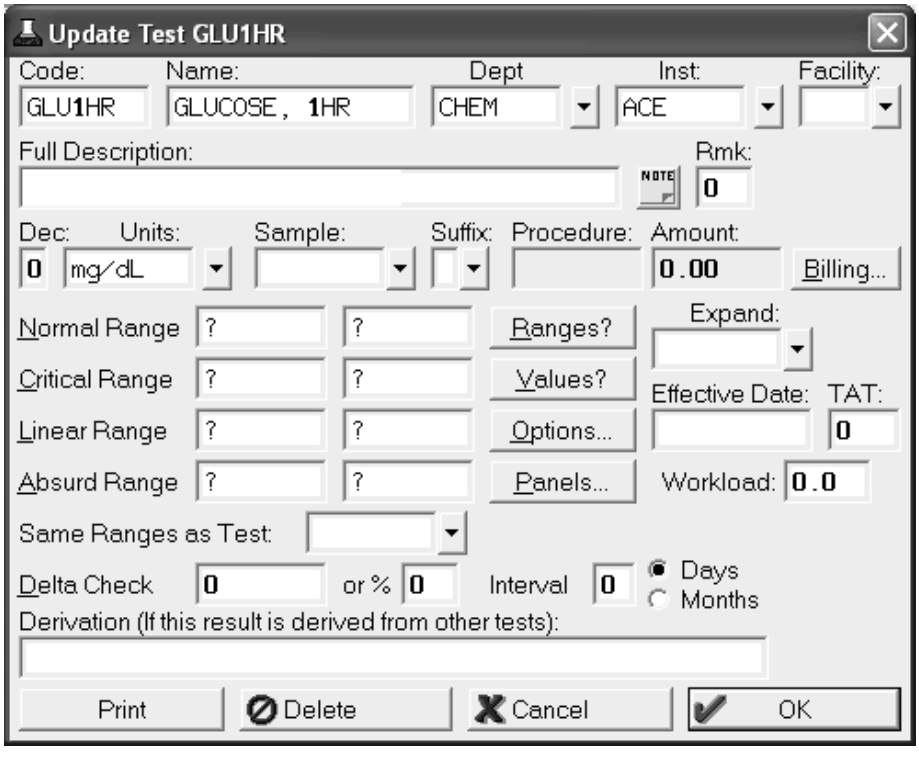
Thus, if John Smith had an Accession ID of 12345, and we ordered a CBC, Lytes, Fasting Glucose, and 2-hr Post-Prandial Glucose, then the CBC, Lytes and Fasting Glucose would be attached to 12345, but the 2-hr PP Glucose would be attached to 12345A. When printed, the barcodes would include any suffixes.

On the analyzer, the barcodes are scanned and a query sent to SchuyLab. Because of the suffix to the Accession ID, the analyzer will assume we have two separate accessions. Thus it will run the Lytes and Fasting Glucose on 12345, but not the 2-hr PP Glucose; and it will run the 2-hr PP Glucose on 12345A, but nothing else.

When the analyzer sends the results to SchuyLab, SchuyLab ignores the suffixes and recombines the results into a single Accession ID, 12345, which is displayed in F4.Devices as usual. It can then be accepted and the results printed.

To set up the new Test Definitions:

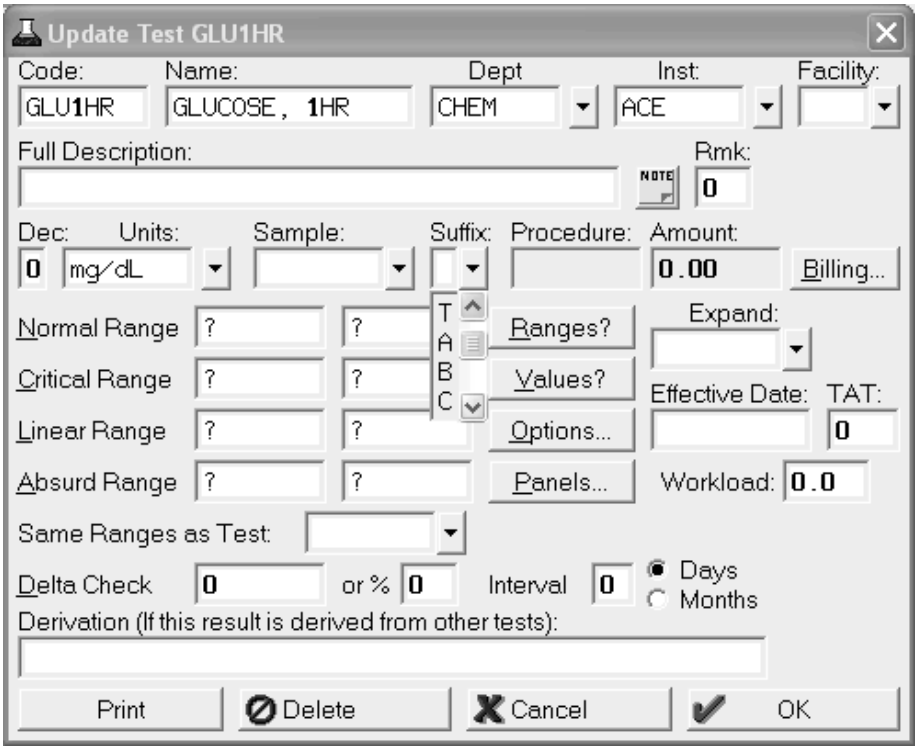
Go to **F8.Tools** > **Set Up** > **Test and Panel Definition** > **Test Definition.** SchuyLab displays the Update Tests list box. Select a test from the list. In the example illustrated below, we've chosen the 1-hr Glucose test from a Glucose Tolerance panel.



The two new fields are Sample and Suffix. Both are blank by default, and can be left that way if the test in question is unique on the analyzer. Only if the analyzer runs several tests (as defined on SchuyLab) under the same name do we need to use the Sample or Suffix fields.

Select the Sample field, and you'll see a pull-down list of possible samples. This list is fixed within the software; each one adds its own special suffix letter to an Accession ID. This is the field to use when you're running a given test on different specimen types: choose the type that's appropriate for this test. (For example, if your lab ran both Serum and Urine Creatinine, you would set the Sample fields on those tests to Serum and Urine, respectively.)

When you've chosen the correct Sample type, select **OK.** SchuyLab returns to the Update Tests box.



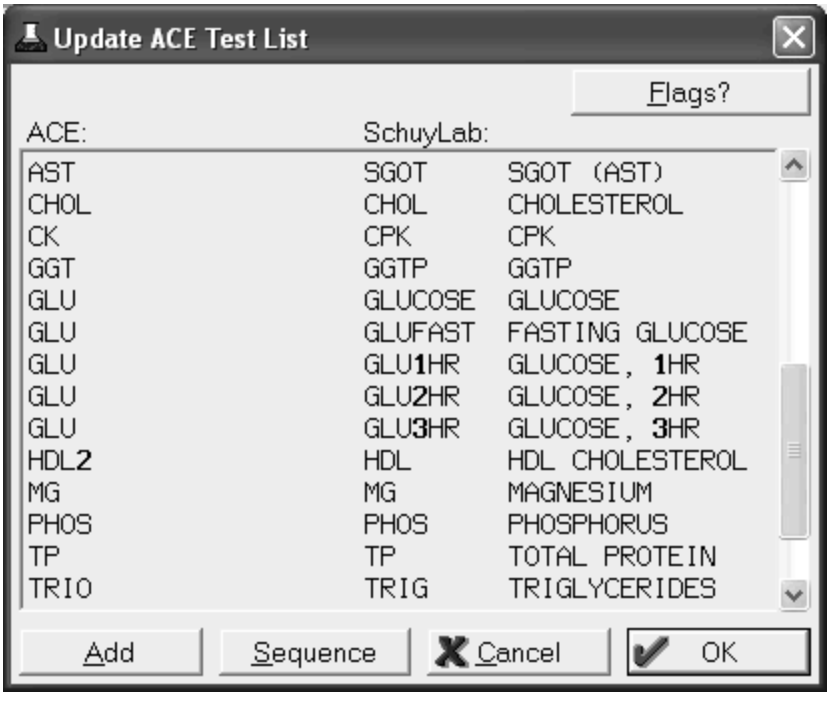
Select the Suffix field, and you'll see a pull-down list of possible single-letter suffixes. This list is fixed within the software; the list will not include the suffixes that have been assigned to the Sample types. This is the field to use when you're running a given test on multiple samples of the same type: choose a letter for each successive test. (For example, if your lab ran Glucose Tolerance, then you might leave the Fasting Glucose suffix blank, assign the suffix "A" to the 1-hr Glucose, the suffix "B" to the 2-hr Glucose, and so on. Similarly, for peak and trough drug tests, assign the "A" suffix to the peak test and the "B" suffix to the trough test.)

When you've chosen the correct Sample type, select **OK.** SchuyLab returns to the Update Tests box.

Adding the suffixed tests to Device Setup

All the tests with Sample and Suffix fields must be added to the Test Translation index in Device Setup. This way, no matter which version of the test is ordered in SchuyLab, the analyzer will receive the test order it expects.

Go to **F8.Tools** > **Set Up** > **Device Setup.** SchuyLab displays the Update Device Tests list box. Select the analyzer name from the list of analyzers.



Using the Add button, add the suffixed tests to the list, translating them to the analyzer's code for that test. In the above example, the ACE analyzer runs all Glucose Tolerances under one test code, "GLU". So we must make sure that not only random Glucose (such as used in the Basic Metabolic Panel), but Fasting Glucose, 1-hr Glucose, &c, are all on the Test List, and all are matched to the ACE's test code "GLU".

When using suffixed tests and barcodes, it's not necessary to Sequence the tests on the Test List. They can be in any sequence you wish.

When the tests are all translated properly, select **OK.**

Printing a Report of Test Definitions

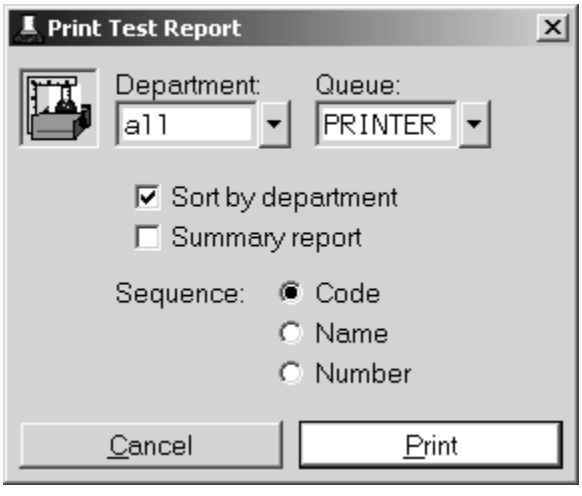
Once you've defined all the tests for your system, you may well want to have a hard copy for review. You can print out the settings on a single test by selecting **Test Definition,** selecting that test from the list in the Update Tests box, and selecting the **Print** button.

It is also possible, and usually preferable, to print a full report of all tests, listing all ranges, derivations, acceptable values, and so forth. This is done through the **Test Report** icon.

To print a report of all test definitions:

Select **F8. Tools.**
Select **Set-Up.**
Select **Test & Panel Definition.**
Select **Test Report.**

SchuyLab displays the **Print Test Report** box.



Choose in what order you want the tests to print: by test code, by name, or (in systems where tests have order numbers) by number. Then select **Print.** SchuyLab prints a list of all the currently defined tests in your system and shows the code name, CPT billing code, normal ranges, critical ranges, comments and derivations if any..

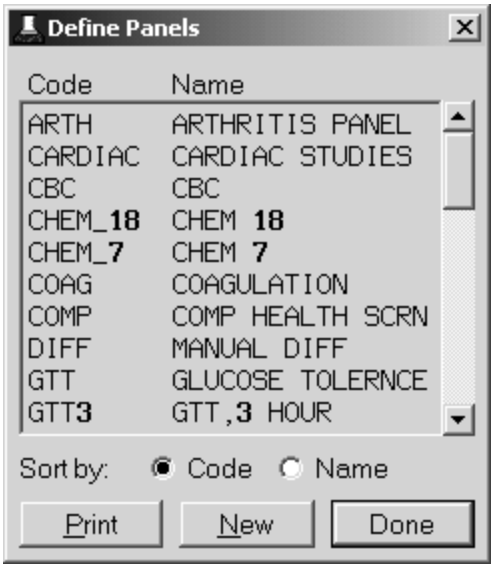
Test Definition Quick List	
To add a new test:	**To update a test:**
1. Press F8. Tools 2. Select Set-Up 3. Select Test & Panel Definition 4. Select Test Definition 5. Select New. SchuyLab displays the Define New Test box. Complete the fields in the box. 6. Select OK.	1. Press F8. Tools 2. Select Set-Up 3. Select Test & Panel Definition 4. Select Test Definition 5. Select a test from the Update Tests box. Alter values, as required. 6. Select OK.

Panel Definition

After you've defined your tests, they can be arranged to form panels. SchuyLab permits you to define your panels to suit your lab's need, including personalized panels for individual doctors. Panels can be assembled from tests, as already defined; and once a few "building block" panels are created, they can be assembled into other panels. (The CBC and Complete Metabolic panels are good examples of these.) For many billing purposes, it is an absolute requirement that if a panel can be defined as a smaller panel plus added tests, it must be done that way. There is no limit to the number of panels you can use, or to the number of tests and panels in a given panel.

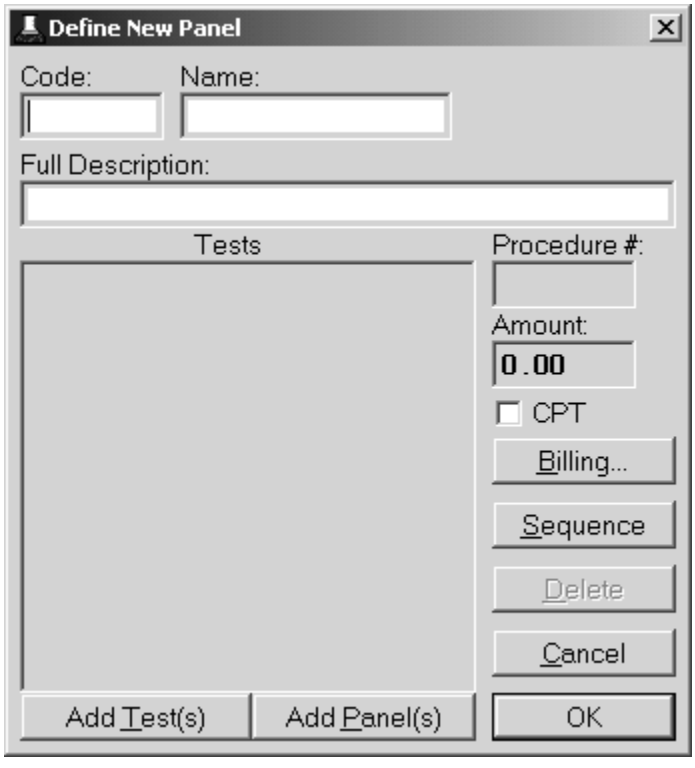
To Create a New Panel

1. Select **F8. Tools.** SchuyLab displays the System Tools menu.
2. Select **Set-Up.** SchuyLab displays the Setup menu.
3. Select **Test & Panel Definition.** SchuyLab displays the Define Tests menu.
4. Select **Panel Definition.** SchuyLab displays the Update Panels box, listing the existing panels.



Each panel has a code, up to eight characters long -- which appears on the buttons in the Order Tests screen -- and a panel name to be printed on your lab's internal reports. By default, the Update Panels box sorts the panels by code, in alphabetical order; if you wish to sort panels by their names, select the Name button at the bottom of the Update Panels box.

5. Select **New.** SchuyLab displays the Define New Panel box. Complete the fields in the box, following the guidelines below. Press Tab to advance through the fields, or use the mouse to move the cursor.



Code The panel code appears on the button in the Order Tests screen. Type up to eight characters for the panel code; use only letters, numbers, and the underline "_" character. You may not duplicate another test code or panel code.

Name The panel name is printed on reports. Type up to 16 characters for the panel name. You may use both letters and numbers. Try to avoid using a test name as the name of your panel.

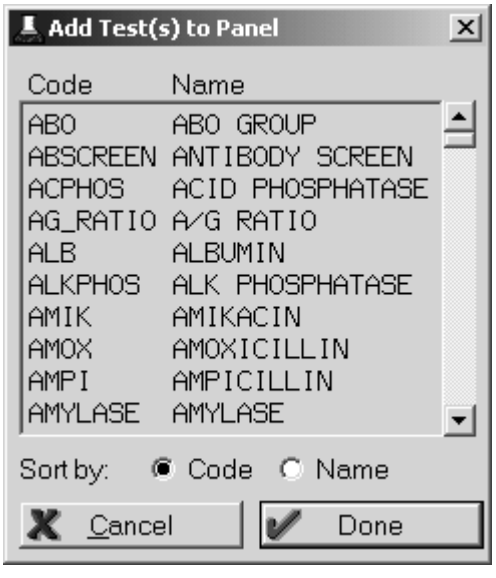
Procedure # Type in a unique billing number (e.g., the CPT code) to enable the Billing module to charge for this panel as a procedure.

Full Description (optional) Type the complete panel name. This name is stored for reference only and doesn't appear on any screens or reports.

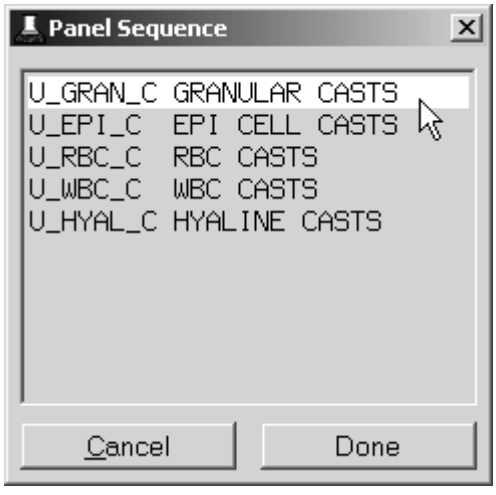
Billing... This button is active only on systems with the Billing Module installed. Selecting this button permits you to define procedure codes and prices, according to the different schedules defined in Billing. For more information, consult the SchuyLab Billing Manual.

CPT If you are to bill this panel as a panel, then check this box. For more information, see the SchuyLab Billing Manual.

6. Select **Add Test(s)** to add tests to the panel, or select **Add Panel(s)** to add a panel to the panel. SchuyLab displays the Add Test(s) to Panel box, listing all the existing tests. (Or the Add Panel(s) to Panel box, listing all the existing panels.)



7. Highlight the tests or panels you want to add to your panel. Select **Done.** SchuyLab returns to the Define New Panel screen and displays the codes and names of the tests or panels you selected in the scroll box.
8. Optionally, you may want to arrange the tests in a certain order on the panel. (This may be important for your internal reports, or if the panel in question is accessed by a trigger test. It does ***not*** affect the order in which results are printed on a patient report; for that see, Report Order, below.) To arrange the panel's entries in order, select **Sequence.** SchuyLab displays the Panel Sequence box.



Click on a test you'd like to move (it will be highlighted in grey), then click where you'd like that test to be. When the sequence is to your liking, select **Done.**

9. When you have selected all the required tests and panels, and arranged them as you like, select **OK.** SchuyLab displays the Update Panels screen with the new panel.
10. To add another panel, select **New** and continue as above.
11. When all the required panels have been completed, select **Done.**

To Update a Panel

1. Select a panel from the Update Panels scroll box.
2. SchuyLab displays the Update Panel [Panel name] box.
3. Add tests or panels, as required.

   Note: If you wish to remove a component from a panel, select the component to be removed. SchuyLab will ask you to confirm that you wish to remove that test or panel. Select **Yes.** The component is then removed from the scroll box. (Select **Cancel** if you've changed your mind, and don't want to remove that test. Note that selecting Enter will default to **No.**) Remember, the **Delete** button ***deletes the entire panel.***

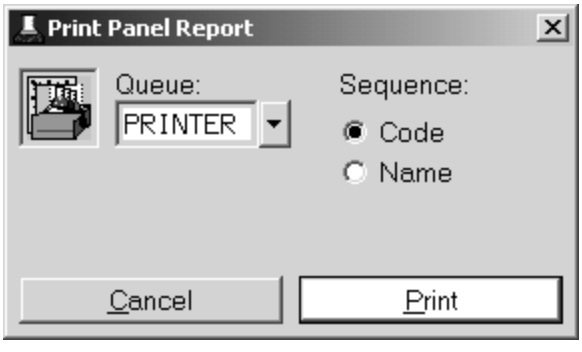
4. Select **OK.**

Printing a Report of Panel Definitions

Once you've defined all the panels for your system, you may well want to have a hard copy for review. You can print out a full report of all panels, listing their component tests and panels.

Select **F8. Tools**.
Select **Set-Up**.
Select **Test & Panel Definition**.
Select **Panel Definition**. SchuyLab displays the Update Panels box.
Select the **Print** button.

SchuyLab displays the Print Panel Report? box.



Choose in what order you want the panels to print: by test code, or by name. Then select **Print.** SchuyLab prints a list of all the currently defined panels in your system.

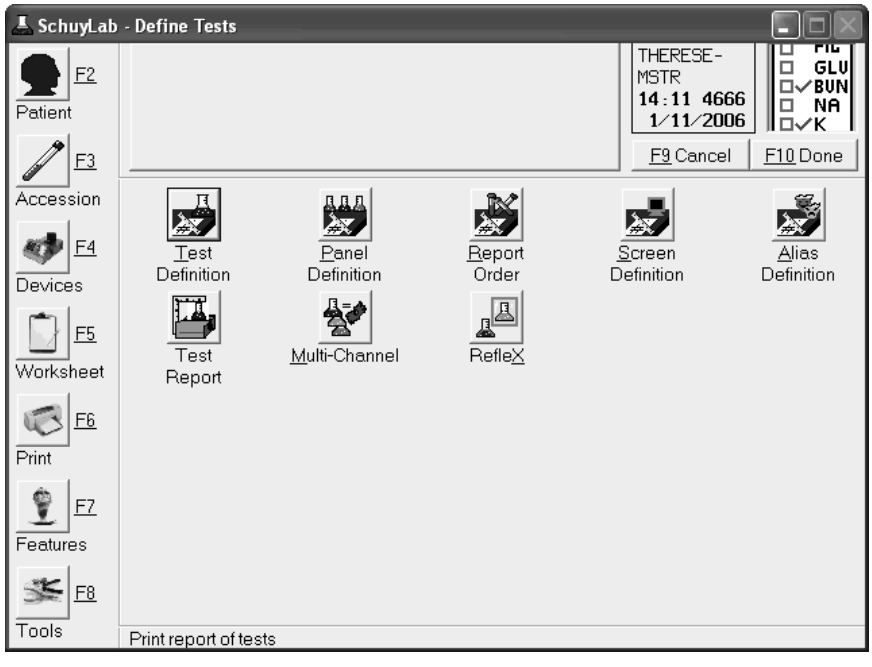
Panel Definition Quick List	
To add a new panel:	**To update a panel:**
1. Select **F8 Tools**. SchuyLab displays the System Tools menu. 2. Select **Set-Up**. SchuyLab displays the Setup menu. 3. Select **Test & Panel Definition**. SchuyLab displays the Define Panels menu. 4. Select **Panel Definition**. SchuyLab displays the Update Panel box, listing the existing panels. 5. Select **New**. SchuyLab displays the Define New Panel box. Complete the fields in the box. 6. Select **OK**.	1. Select **F8 Tools**. SchuyLab displays the System Tools menu. 2. Select **Set-Up**. SchuyLab displays the Setup menu. 3. Select **Test & Panel Definition**. SchuyLab displays the Define Panels menu. 4. Select **Panel Definition**. SchuyLab displays the Update Panels box. Select a panel from the scroll box. 5. Alter entries, as required. 6. Select **OK**.

Reflex Testing

The purpose of Reflex Testing is for SchuyLab to automatically order a test when certain conditions are met. Those conditions can include the results of other tests, the patient's diagnosis, and the use of a specific remark code. Reflex testing is legal as long as the laboratory explicitly describes to their doctors the conditions under which the automatic ordering of tests occurs. It is recommended that a laboratory frequently review and advise their doctors of these policies.

When used wisely, reflex testing provides a more complete clinical picture to the physician and avoids days of elapsed time while add-on tests are performed.

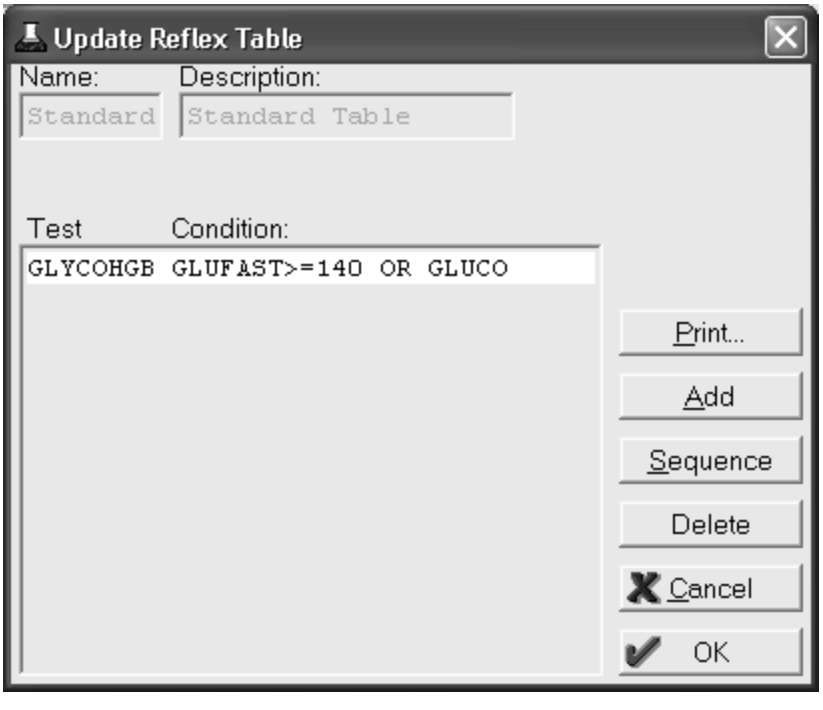
SchuyLab allows you to setup many tables, each of which can generate Reflex tests according to different criteria. SchuyLab will soon be able to attach these various tables to clients, allowing each client to select their own parameters for the testing they want to have done.



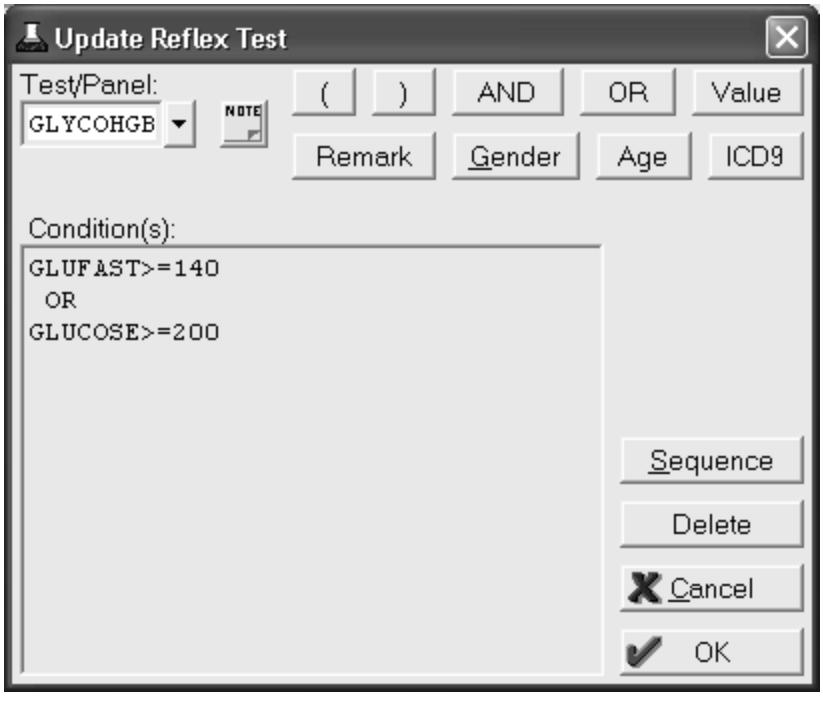
While Reflex testing is a powerful module, it's setup is located in Test & Panel Definition, not in Features. Select Reflex to bring up a list of the various reflex testing tables that the SL system has defined on it.

The Standard Table is the default.

Click on the Standard Table and you will see it only has a Glycohemoglobin test in its list.



Click on the entry and SL shows you the list of reflex tests that have been defined. Select Add to make a new entry to the table, or click on one of the existing lines to modify it. In this table, we have a Glycohemoglobin test.

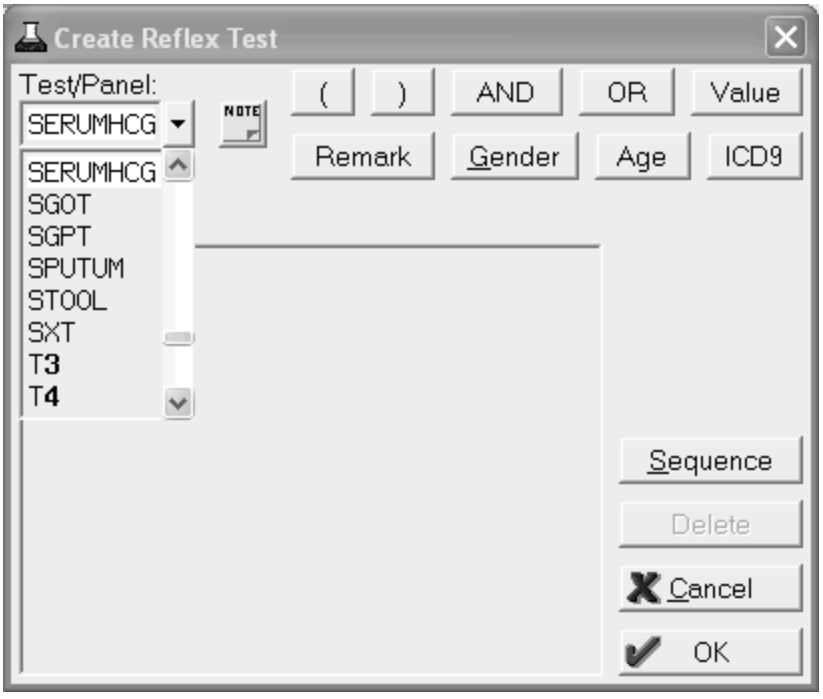


The test you select in the pull-down box is the test that will be reflexively ordered when the conditions you set have been met. In this example, Glycohemoglobin (GLYCOHGB), is automatically ordered by SL when the fasting glucose (GLUFAST) test result is equal to or over 140 or the random glucose (GLUCOSE) test result is over 200.

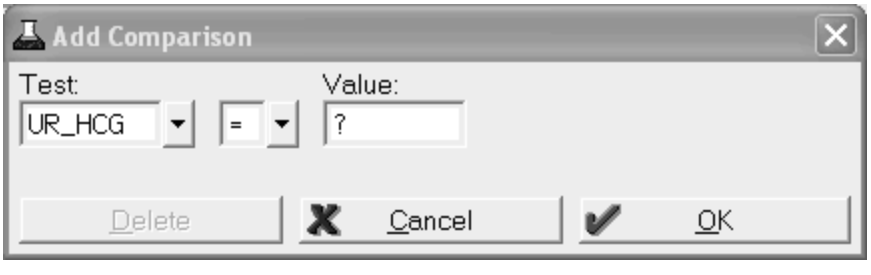
To Set Up a New Reflex Test

Go to **F8: Tools**
Set-Up
Test & Panel Definition
RefleX
Standard Table

Select Add and select the test you want to be reflexively ordered to be visible in the pull down box.

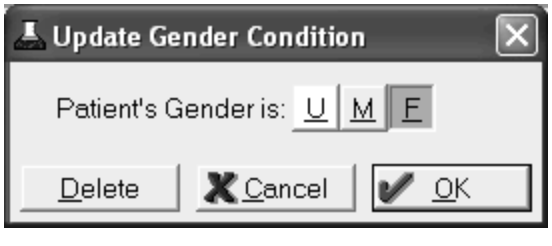


In this case, let's have a Serum HCG automatically ordered if the Urine HCG is positive. Next select Value and under "Test", select the Urine HCG.

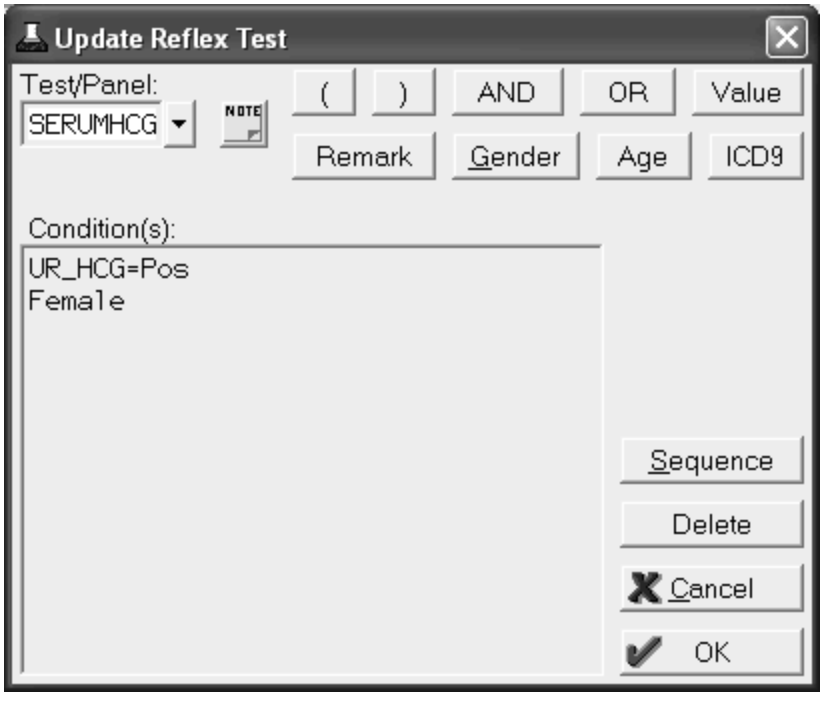


In the Value field type "Pos" and click OK.

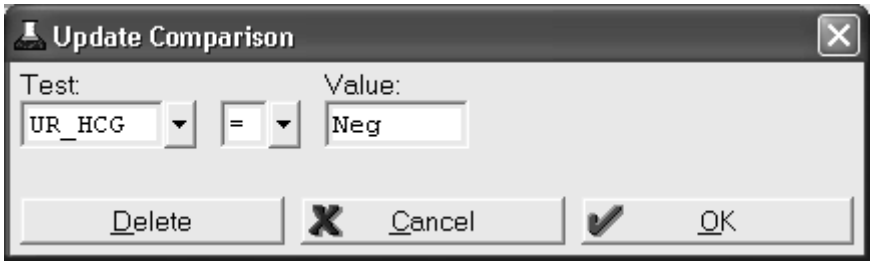
Now select Gender, then select F(emale).



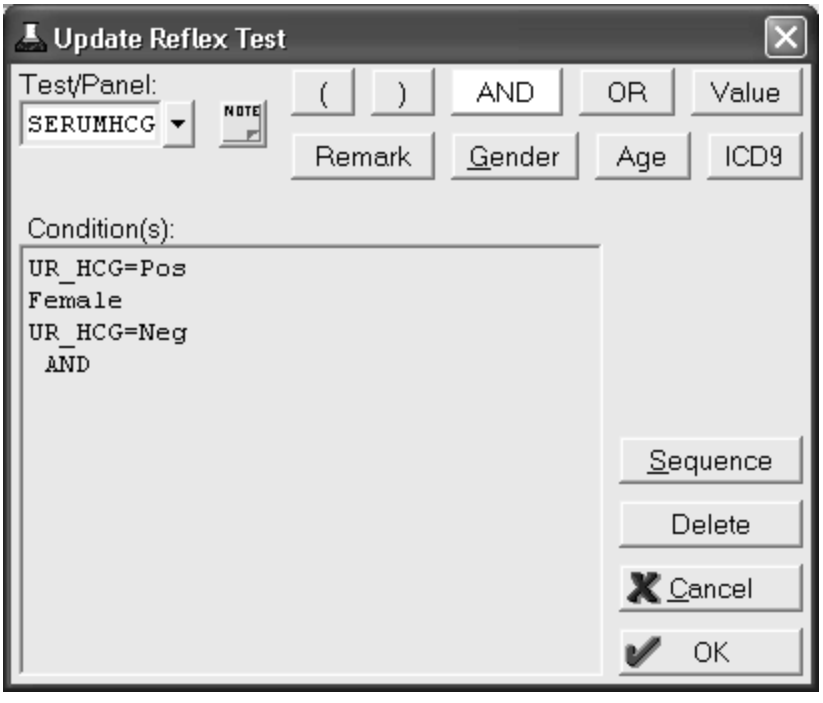
When you click OK, you have now have defined a set of conditions under which the Serum HCG is automatically ordered. If the patient is a Female, and the results of her urine pregnancy test are positive, SchuyLab will automatically order a confirmatory serum pregnancy test.



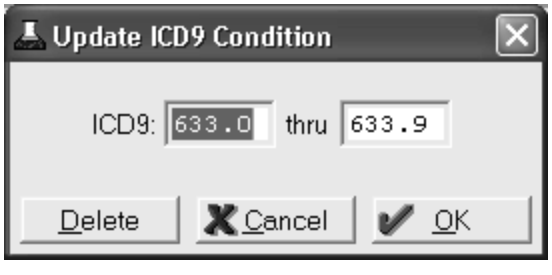
Let us add some more complexity to this: Suppose we also want to do a serum HCG if the urine test is *negative* and the doctor suspects an ectopic pregnancy. Select Value again, but this time say that the value is negative.



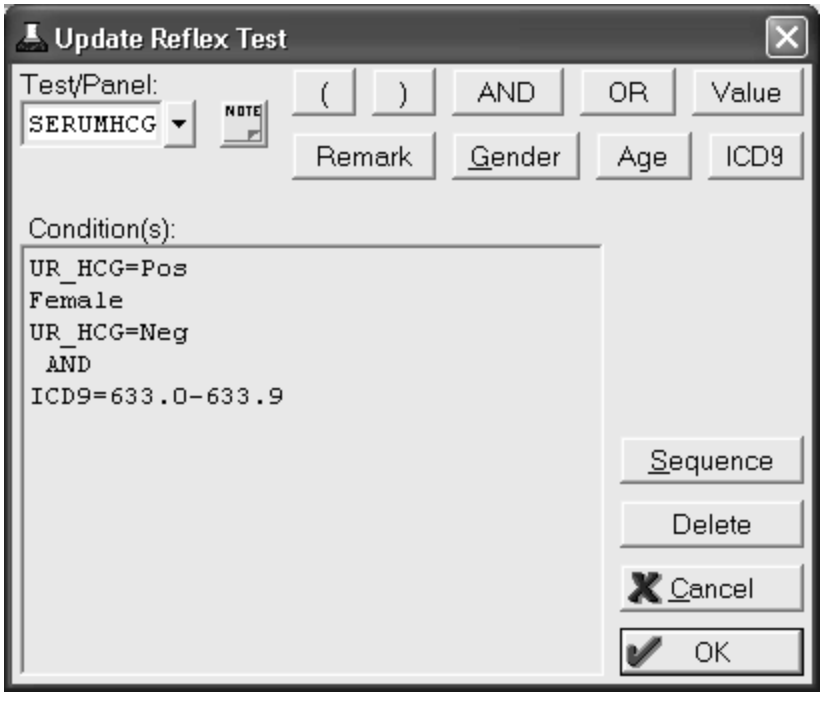
Then select the **AND** button



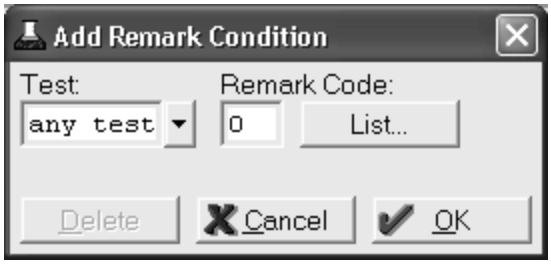
Select the ICD9 button and put in a range of ICD9 codes that reflect the diagnosis of an ectopic pregnancy.



Now the full picture for the reflex ordering of the serum pregnancy test is revealed to be that the patient is Female and either the urine test is positive or the urine pregnancy test is negative and the diagnosis codes that accompany it reflect the probability of an ectopic pregnancy.

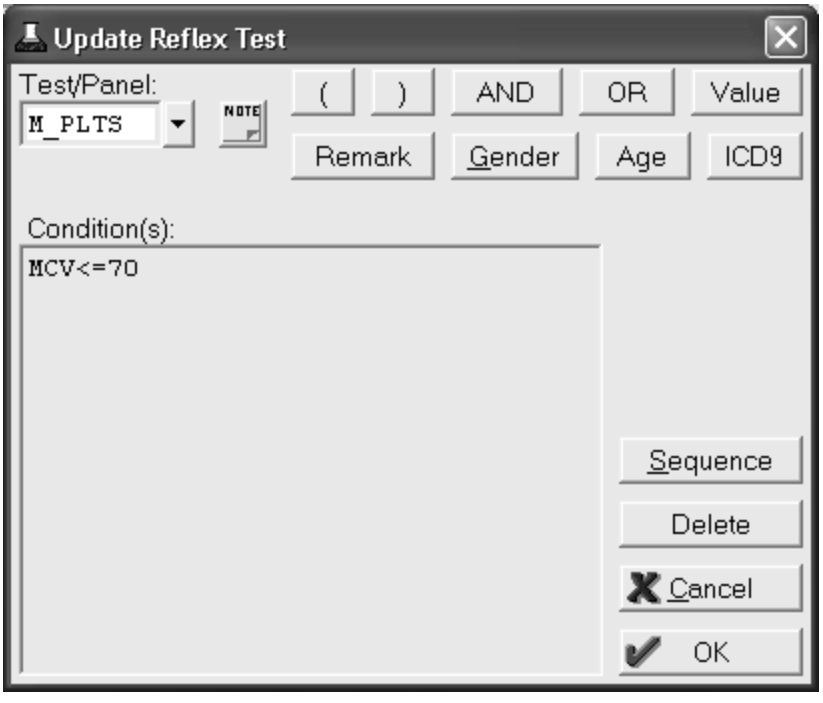


If you want the reflex test to appear as a result of a Remark code, then list the code that triggers the test in **Remark**.

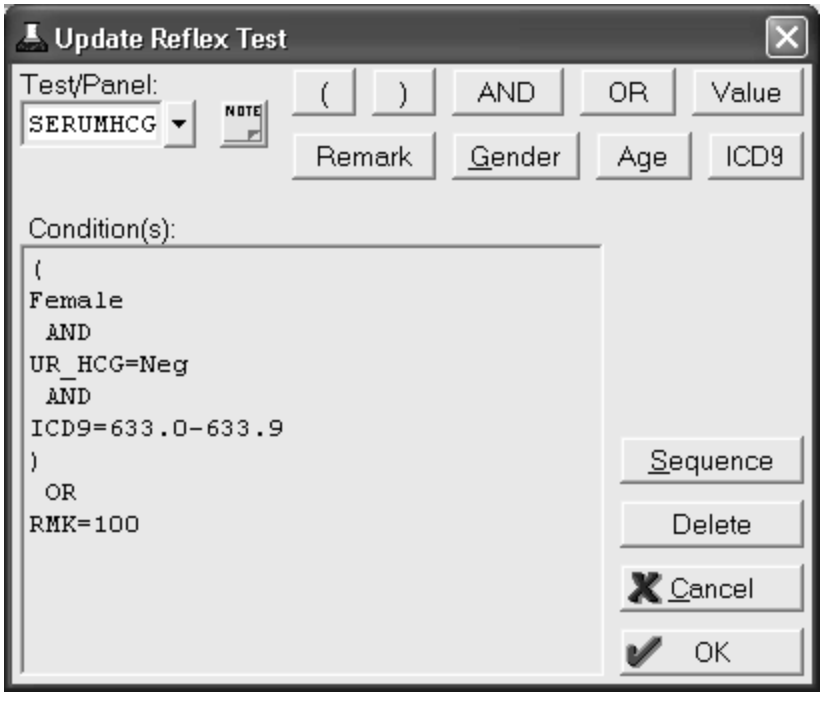


You can specify that the Remark must be placed on a specific test, or allow it to be put on any test. The Remark cannot be placed on an Accession or on a Patient and acts as a trigger for a reflex test. The test upon which the Remark is placed must be Accepted before the reflex test will be triggered.

Another example of a situation where you would want a reflex action is if the MCV is <70, and you suspect that your instrument is reading microcytic RBC's as platelets, you want to generate a manual platelet count. (Yes, you could conceivably trigger this off a Remark code too.)



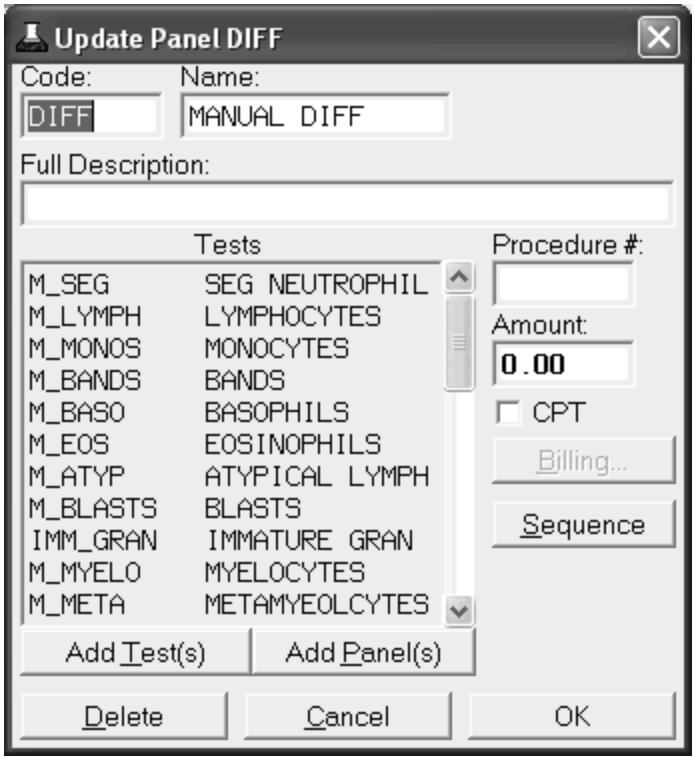
Lastly by using the parentheses and the "AND" and "OR" conjunctions, you can make a complex set of rules to generated a test reflexively.



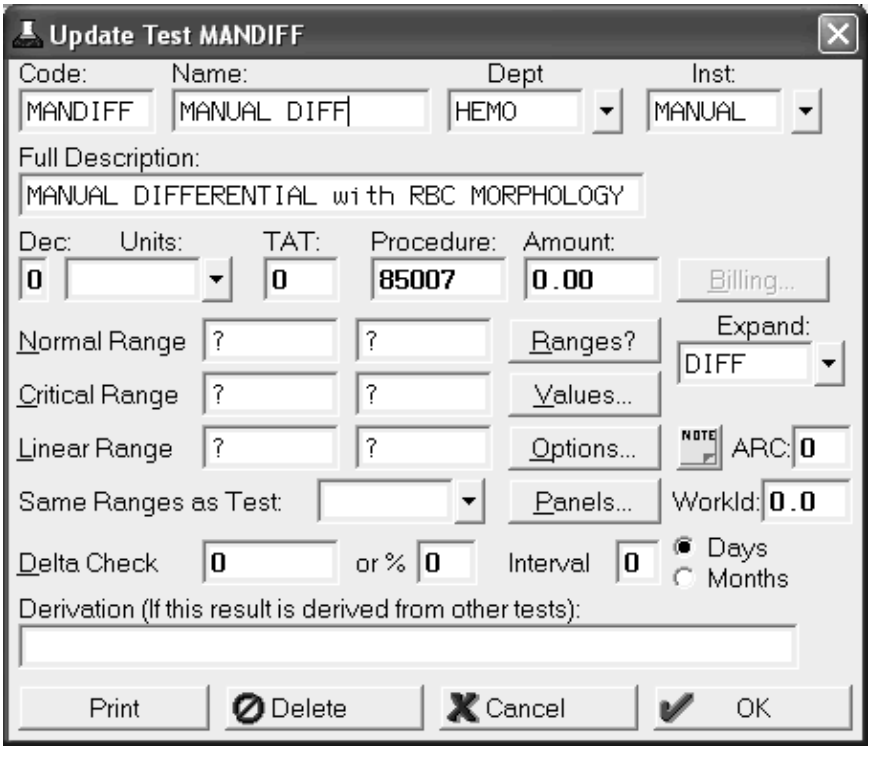
If the patient is female, and her urine pregnancy is negative and her diagnosis indicates an ectopic pregnancy, then a serum pregnancy test is ordered. Or if Remark code 100 (Lower right quadrant pain) is appended to a test result, then the serum pregnancy would also be ordered.

Trigger Tests

Trigger, or expanding, tests are tests that may or may not result in more tests. Confused? OK, let's look at a CBC. You run the CBC instrument and the results come back that you need to look at a slide of the patient's blood, or you need to perform a Manual Diff. Back in Sec. 3, Daily Operations, you learned how to accept the results for a Trigger test. But how is it set up? First we can identify which tests we want in the panel.



As you can see, we have set up a panel called DIFF and it lists the tests included in the panel. Now we need a test that we can use to call for this panel. Let's call it MANDIFF;



The only difference in this test and any other is in the Expand box. We enter the name of the panel (DIFF) that it is tied to. Under Values, the results are *Normal* or *See Below*. The Manual Diff is just one of the tests that are setup for you already in SchuyLab. The others are U_CASTS (Urine Casts) and U_CRYST (Urine Crystals), but you can set up many of your own.

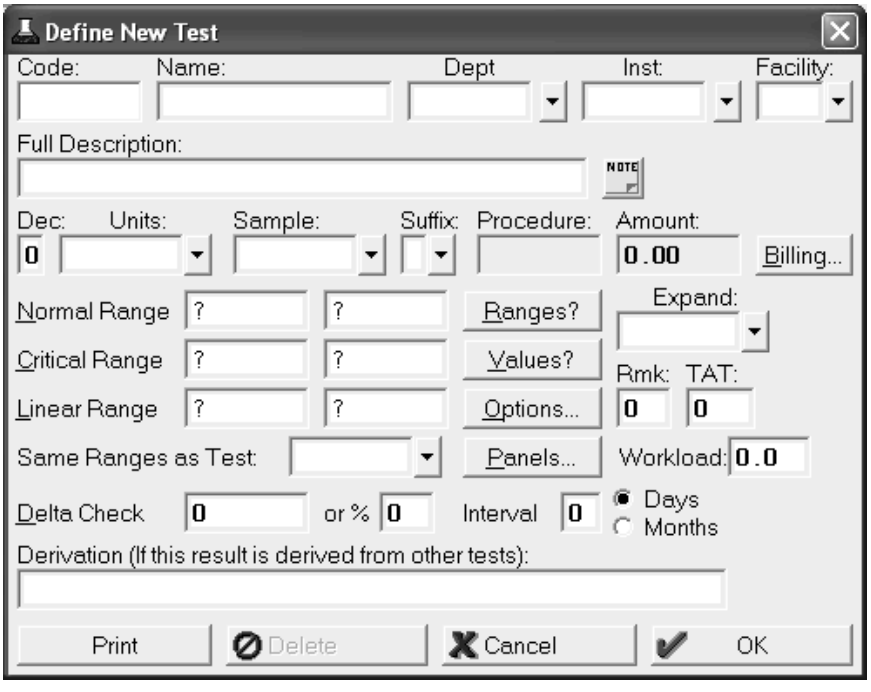
Allergy Tests

In the course of installing SchuyLab in laboratories that performed Allergy testing, we implemented several changes that were necessary to handle some of their specialized needs.

The main difficulty that we discovered was that Allergy testing often required the setup of up to 1,000 different Allergens (and possibly more if a lab tests for multiple Immunoglobins). This puts pressure on several areas like Worksheets and Report Groups that were designed for a smaller load. And in addition, each of these tests would have the same range. Since the setup could be fairly complicated for each Allergen—setting up several non-standard values and interpretative ranges—configuring these tests might take a small army to complete in a timely fashion. Right now there is only one army that has the schedule to work it, and no one wants to hire the French. And then having to update the values for 1,000 different tests if

the Interpretative Ranges change or different values are implemented is an equally intimidating and time consuming task.
SchuyLab is now capable of accommodating these needs.

Go to **F8: Tools**
Set-Up
Test & Panel Definition
Test Definition



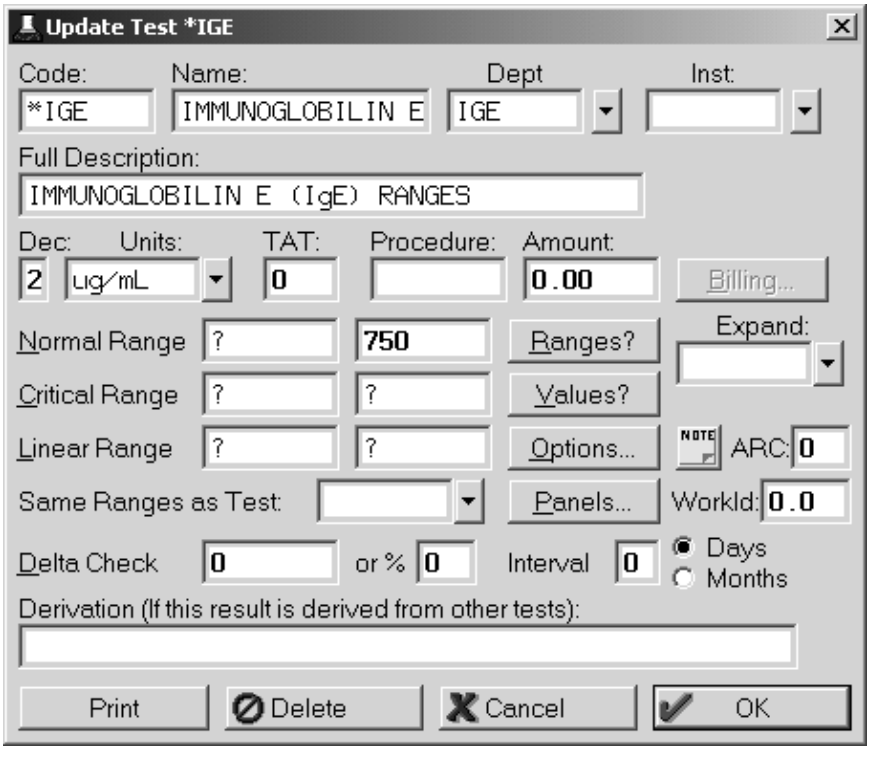
Click **New**, and you will see the **Define New Test** window appear.

Same Ranges as Test: You can select a test from this list – so long as it's listed *before* the test you're defining – and all the Range fields and the **Ranges?** button will be grayed out. All ranges—Normal, Critical, Linear, Interpretative, etc. – for this test will be taken from that selected test.

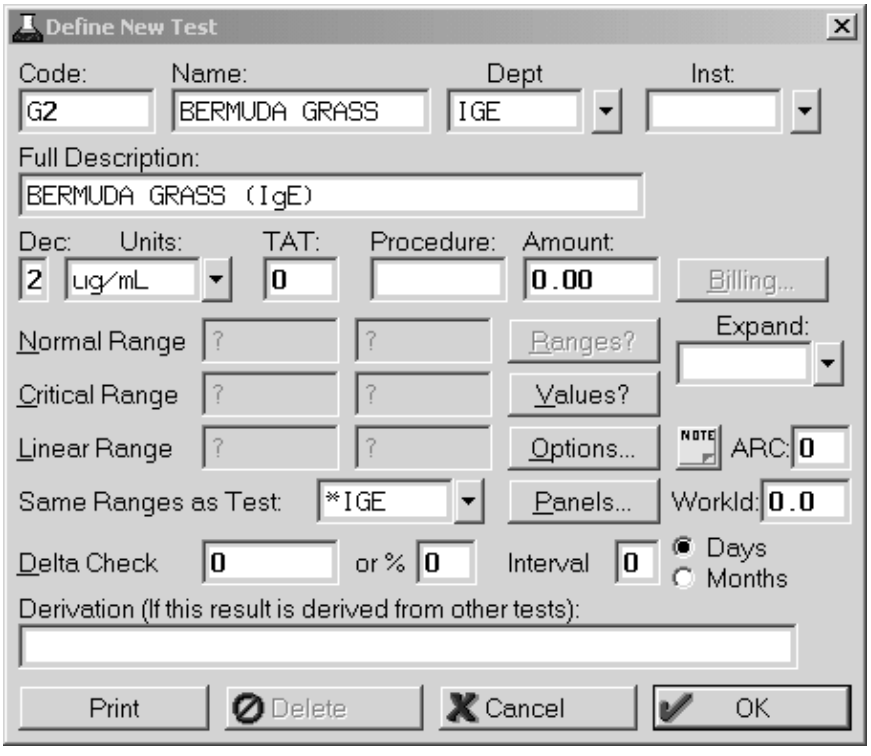
Configuring Allergy Tests

There are two steps in configuring Allergy tests: setting up the Reference Range test and setting up the Allergen tests. The Reference Range test will never be ordered or printed out on a report; however, it will be used by the Allergen tests to define all their Ranges. Also, if the need comes to update the Interpretative Ranges or such, this change can be made in one place without having to change the settings on 1,000 different Allergen tests.

The Reference Range test is setup like any other test—define a **Code:**, a **Name:**, number of **Dec**imal places, **Units**, **Normal Range**, **Values…**, **Interpretative Ranges**, etc. For the Reference Range test to work, this test must be listed before all the Allergen tests that reference it. We therefore recommend using the **#** (Shift + 3) or ***** (Shift + 8) characters at the beginning of the Test Code to make sure it appears at the top of your Test List. If you ever need to update the Reference Range test, you will need to exit out of SchuyLab and log back in before the changes will be applied to all the Allergen tests.



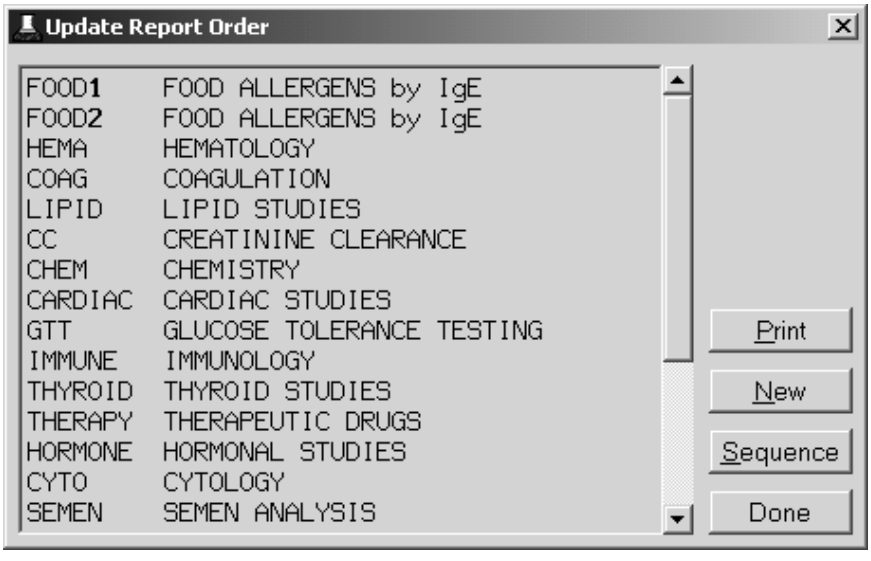
The second step is to organize all your Allergen tests. These too follow the same guidelines set up in the *SchuyLab User Manual*—you will need to create a **Code:**, a **Name:**, etc. Make sure to put enter the **Dec:** and **Units:** fields; these will print out on your report. In the **Same Ranges as Test:** field, select the Reference Range test you set up earlier. Once you have selected a test for this field, the **Range** fields and **Ranges…** button will be grayed out and inaccessible.



Because of the large quantity of tests used by SchuyLab in Allergy Laboratories, other changes were implemented in areas like Worksheets (which can now handle up to 200 tests per worksheet) and Report Order.

Printing Large Numbers of Tests

Because, in allergy testing, the Printing Groups can also be very large, a new feature has been added to Printing Groups. If two groups in a row have exactly the same name and both print, the groups will be merged together. (The second iteration of the Group name will be omitted.) Obviously, if either group prints by itself it will keep its own Group name. This allows very large groups to be built out of separate sub-groups.



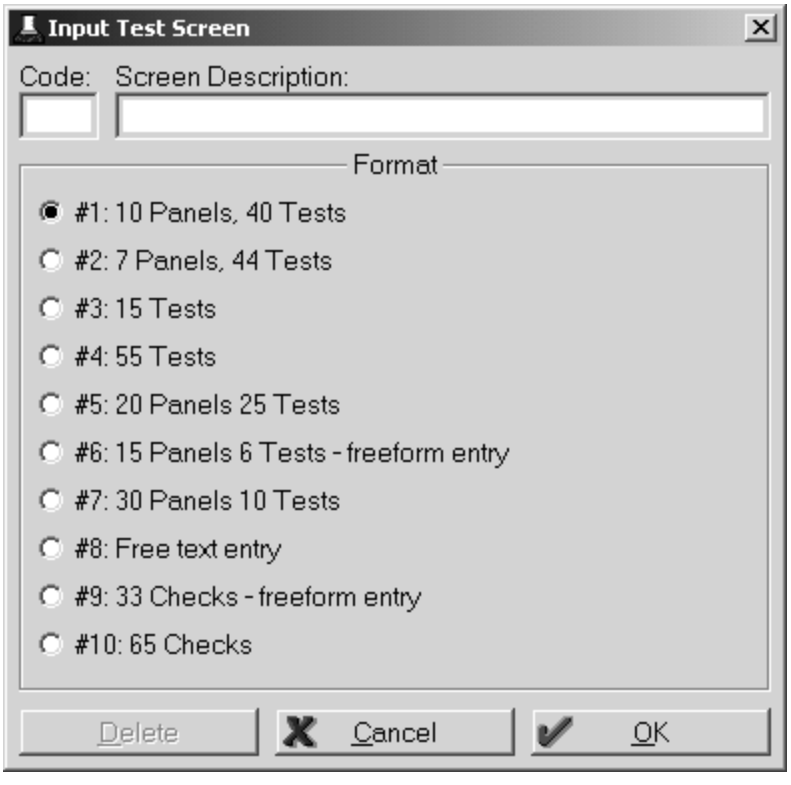
In the example given above, "FOOD1" and "FOOD2" would merge. The report would show a single Printing Group with the heading "FOOD ALLERGENS by IgE".

Screen Definition

Once tests and panels are defined, they must be made available for users to order them. This is done through the Screen Definition function. It configures the Order Tests screens to meet your lab's needs and requirements.

To Configure a New Order Tests Screen

1. Select **F8. Tools.** SchuyLab displays the System Tools menu.
2. Select **Set-Up.** SchuyLab displays the Setup menu.
3. Select **Test & Panel Definition.** SchuyLab displays the Define Tests menu.
4. Select **Screen Definition.** SchuyLab displays the Define Tests Screens screen, with a horizontal row of buttons. Some will be labeled already, denoting your currently defined screens; others will be blank. These buttons can represent departments, functions, or group headings for logical collections of panels and tests. Each button can be configured to display a screen of buttons representing panels and tests.
5. Select a blank button. SchuyLab displays the Input Test Screen box. Complete the fields in the box, following the guidelines below. Press Tab to advance through the fields.



Code Type up to four characters for the department or function name to appear on the button for this screen. You should use only letters, numbers, and the underline "_" character.

Screen Description (optional) Type the complete department or function name. This name is stored for reference only and doesn't appear on any screens or reports.

Format Select one of the screen formats displayed in the Format section of the box. Consider the contents of the screen: how many tests and panels do you want, and in what proportion?

- **#1** This format has room for up to 10 panels and up to 40 tests.
- **#2** This format has room for up to 7 panels and up to 44 tests.
- **#3** This format has room for no panels and up to 15 tests.
- **#4** This format has room for no panels and up to 55 tests.
- **#5** This format has room for up to 20 panels and up to 25 tests.

#6 This format has room for up to 15 panels and up to 25 tests, and also permits freeform entry for orders.

#7 This format has room for up to 30 panels and up to 10 tests.

#8 This format is used on systems with numbered tests and panels. It has room for up to 10 panels and up to 4 tests, and also permits freeform entry for orders.

#9 This format allows for 33 check boxes (instead of buttons) and free form text.

#10 This format allows for 66 check boxes that can be used for either tests or panels.

6. Select **OK.** SchuyLab displays a screen of blank buttons in the selected format.
7. To fill in the panels, select one of the large panel buttons. SchuyLab displays the Select a Panel scroll box. Scroll down the list of panels until you see the panel you wish. Select that panel. SchuyLab now displays the Code for that panel on the button. Select the next panel button, and continue as above.
   To remove the panel from a button, simply select that button again and the code will be removed. Once the button is blank, you may select another panel for it.
   To ***move*** a panel from one button to another, select the button with the panel, using the ***left*** mouse button. The panel code will be removed. Then select a blank button, using the ***right*** mouse button. The same panel code will now be on the new button.
8. To fill in the tests, select one of the small test buttons. SchuyLab will display a Select a Test scroll box. Scroll down the list of tests until you see the test you wish. Select that test. SchuyLab now displays the Code for that test on the button. Select the next button, and continue as above.
   To remove the test from a button, simply select that button again and the code will be removed. Once the button is blank, you may select another test for it.
   To ***move*** a test from one button to another, select the button with the test, using the ***left*** mouse button. The test code will be removed. Then select a blank button, using the ***right*** mouse button. The same test code will now be on the new button.

   Note: To see if the test and panel buttons work properly in conjunction with each other when the panel is selected, you must exit this screen and go to the Order Tests function. Trying to test your panel buttons on this screen will only succeed in deleting them.

9. When the order screen is configured to your satisfaction, select **F10. Done.** SchuyLab returns to the Define Tests menu screen.

Client Panels

When selecting panels to be placed on the Order Tests screens, you may have noticed five panels labeled “Client#1”, “Client#2”, up through “Client#5”. These are called

"client panels". They are not panels, per se: if you select the Panel Definition icon, you won't find them listed. Instead, these are placeholders for panels. They're put on the Order Tests screen to designate panels assigned to a particular client -- and won't appear for any other client.

Let me give an example. Suppose that Clinica General has a special panel for arthritis. You would define this panel (calling it "CG_ARTH", or some such) exactly as you would any other panel. But you only want this panel to be ordered for patients from Clinica General -- not for patients from, say, St. Joseph's Clinic. In that case, you'd assign CG_ARTH to be the first panel for Clinica General; this is done as part of the definition of that client (described under Section 8, Managerial Functions). Then, in Screen Definition, you'd select the "Client#1" client panel for one of the Order Tests screens.

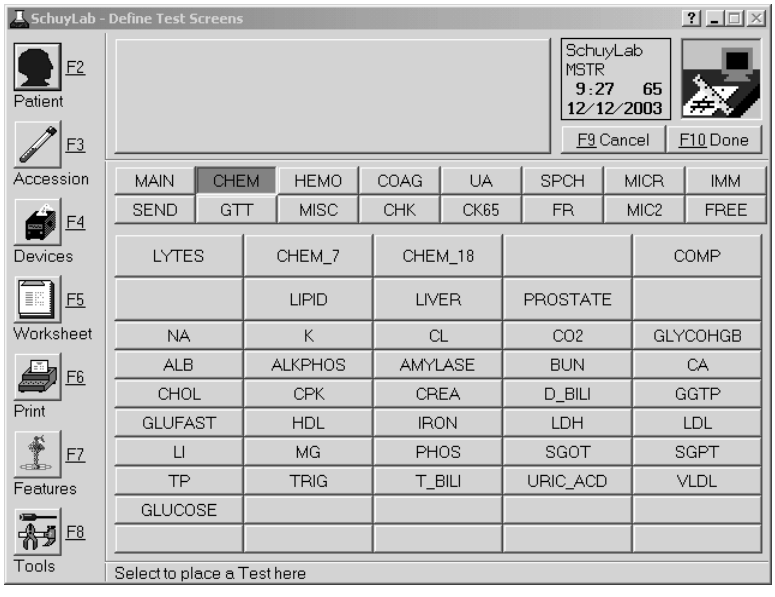
Now, whenever a patient is identified as belonging to Clinica General, that button will show CG_ARTH when ordering tests. But for patients from St. Joseph's, the button remains blank. In this way, personalized panels will only be available to the customer for whom they were defined.

Further details for setting up Client Panels will be found under Doctor Records, below.

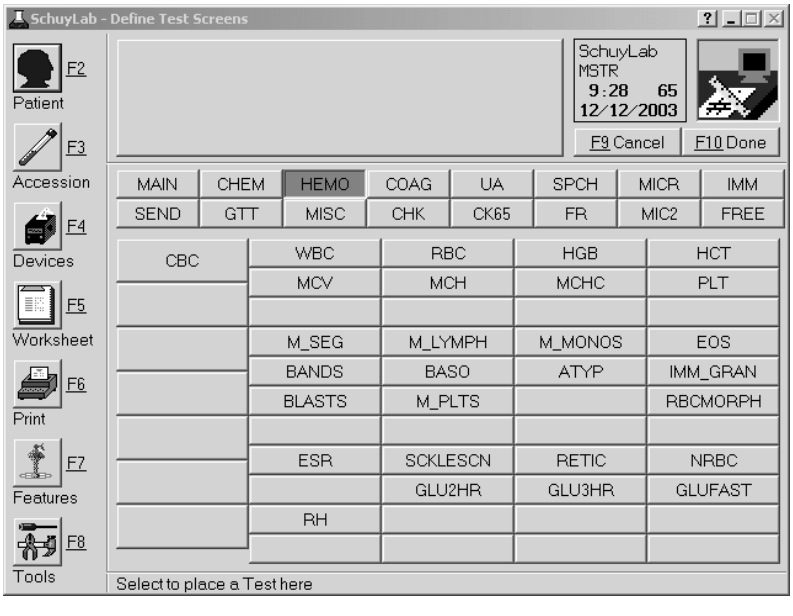
Examples of Formats for Order Tests Screens

Here follow some examples of the screen formats, which are selected by number in the Input Test Screen box.

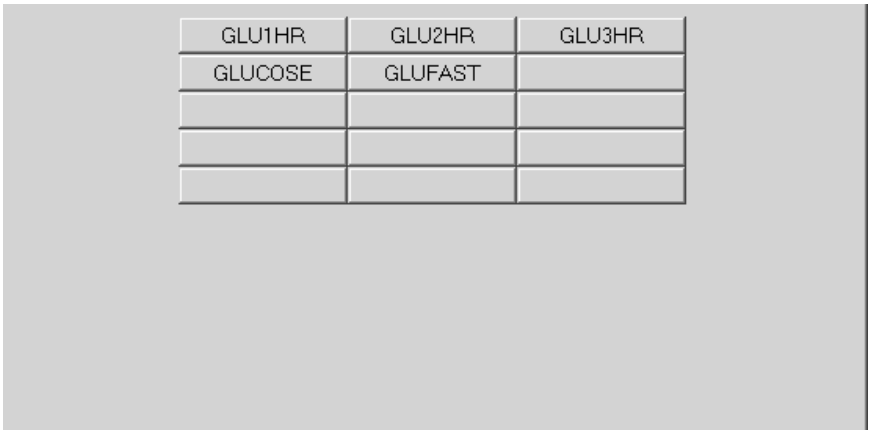
Format #1



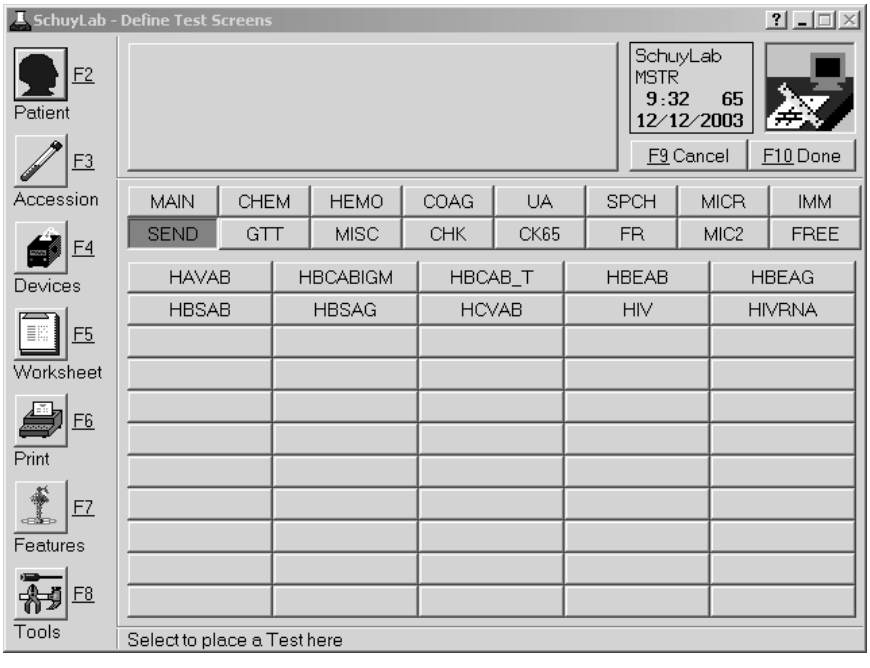
Format #2



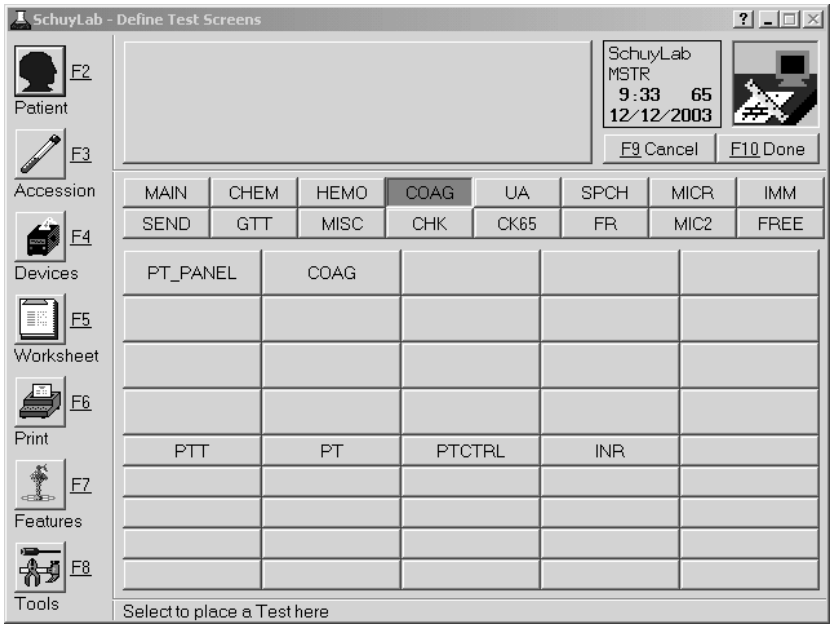
Format #3



Format #4

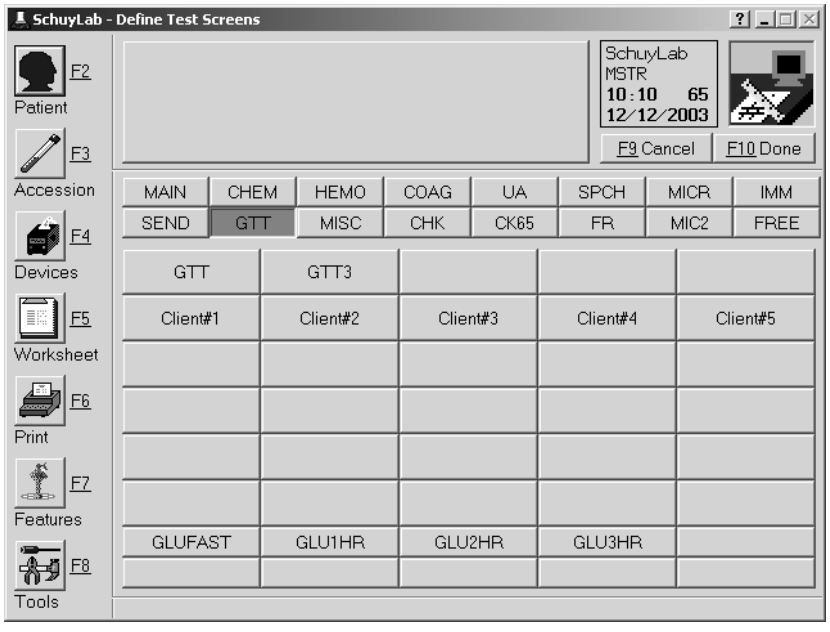


Format #5

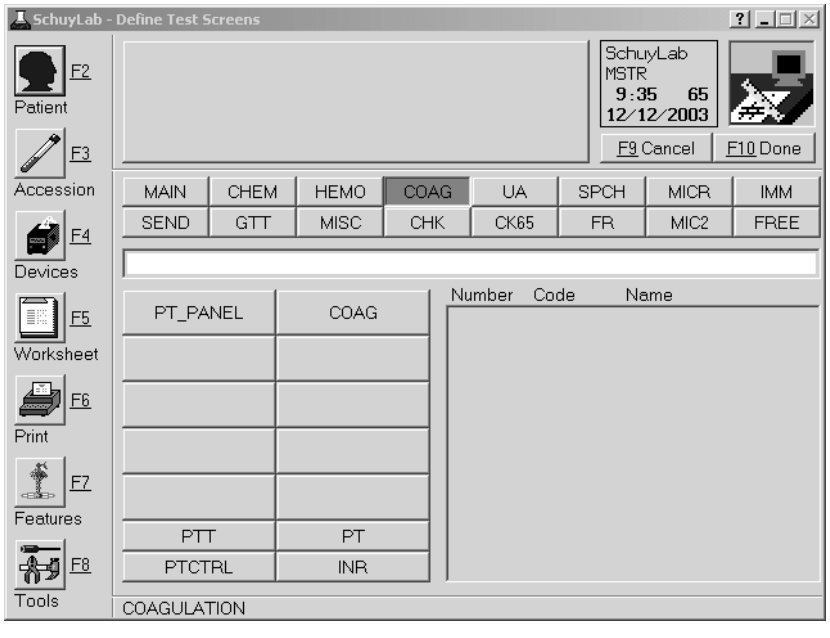


Format #6

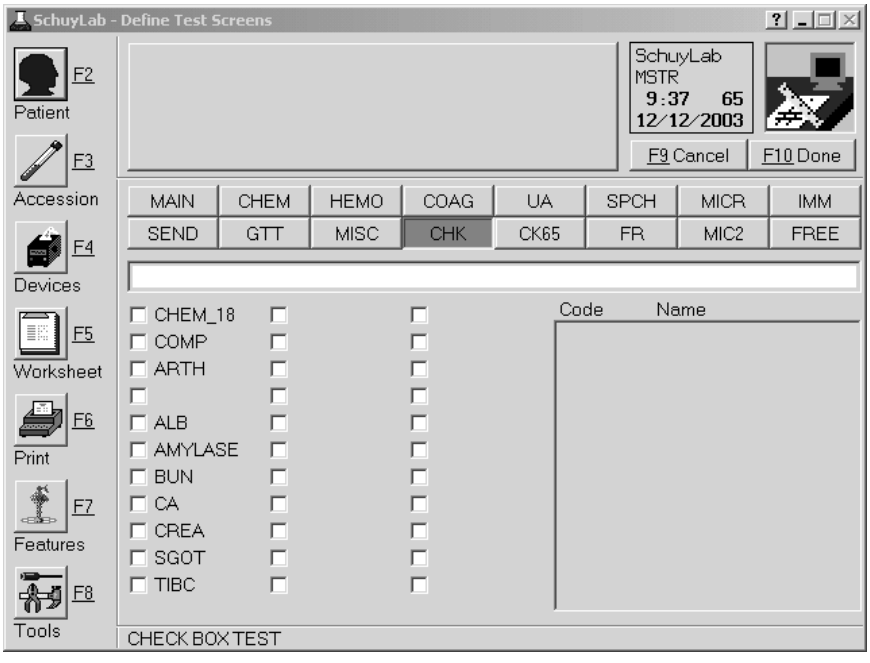
Format #7
Note the use of client panels in this example.



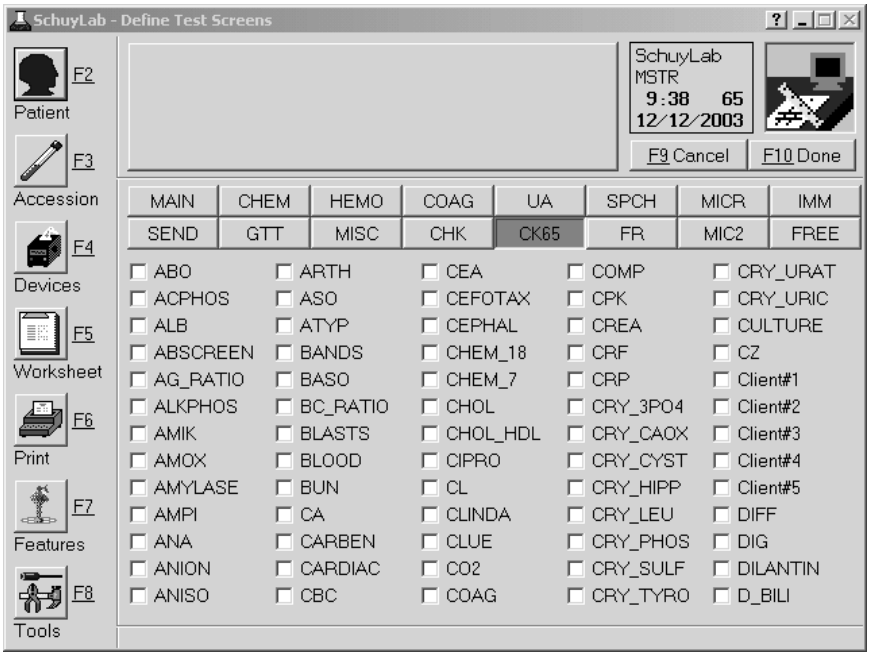
Format # 8



Format # 9



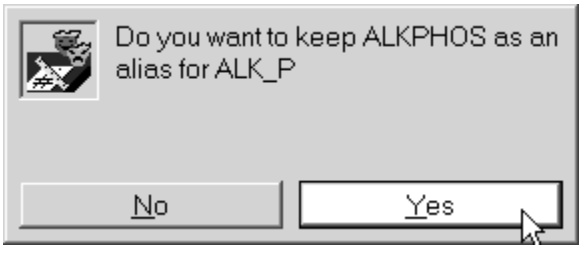
Format # 10



Alias Definition

If humans were perfect, all the tests and panels for your lab would have been perfectly defined from the very start, and never need to be changed. Humans, sad to say, aren't perfect. For any of a number of reasons -- clarity, or esthetics, or to avoid conflict -- the code assigned to a test or panel might need to be changed. But SchuyLab uses those codes to keep track of what's been ordered on a specimen. Changing a test code, when that test has been ordered for a patient, might result in the test never being performed -- with all the administrative tangle that would ensue.

To correct this, SchuyLab permits aliases to be defined for each test and panel. If you make changes to a test code through the **Test Definition** icon, SchuyLab will automatically ask you if you want to save the old test code as an alias.



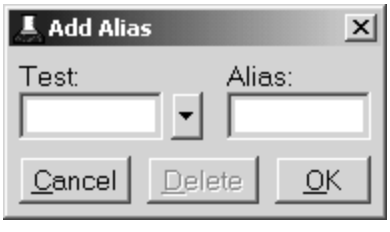
If you've used your SchuyLab system for any length of time at all, select **Yes!** Otherwise, any specimens with that test ordered under the old code will be orphaned: the computer thinks that test is still pending, but you won't be able to access it, or cancel it, because its code isn't in the SchuyLab database. (The only time it's safe to forego an alias when changing a test code is if you've just finished defining the test -- that is, when no orders anywhere in the database include that test.)

Manually entering an alias for a test or panel

Despite the above warning, you may someday accidentally change a test code without saving the old code as an alias. (As noted above, humans aren't perfect.) You can still manually enter the alias, so that SchuyLab will be able to translate the new test code into the old test code for those specimens still using the old test code.

To enter an alias for a test or panel:
Select **F8. Tools**.
Select **Set-Up**.
Select **Test & Panel Definition**.
Select **Alias Definition**.
SchuyLab displays the Update Test Alias box, listing all the current aliases for tests and panel codes.

To add a new alias, select +**Test** (for test codes) or +**Panel** (for panel codes). SchuyLab displays the Add Alias box.



In the Test field, pull down the list of currently defined tests and select the one for which you wish to add an alias. In the Alias field, type in the alias (for instance, the old code for that test). When done, select **OK.** SchuyLab returns to the Update Test Alias Box.

To alter an alias that's already been defined, select it from the Update Test Alias List. SchuyLab displays the Update Alias box, which is identical to the Add Alias box except that its fields are already filled. Make the appropriate changes and select **OK.** SchuyLab returns to the Update Test Alias Box.

When you're done with the Update Test Alias Box, select **OK.** SchuyLab returns to the Test Definition menu screen.

Report Order (printing groups)

The test, panel, and screen definitions, already discussed, establish the internal configuration of the SchuyLab system you use everyday in your lab. However, their arrangement has nothing to do with the format and look of your patient reports. For that, you use the Report Order icon. This icon controls the arrangement and order of *printing groups,* which are printed on the report.

It may be useful at this point to emphasize what printing groups are ***not.*** They aren't related in any way to the panels and screens you've thus far set up; they aren't related in any way to your worksheets; they aren't related in any way to how you order, process, or bill tests. Their sole purpose is to arrange the format of the patient reports.

As a concrete example, if you have a panel personalized for Dr. Green, which you have imaginatively named DR_GRN, you will not automatically have a section on your final report labeled DR. GREEN'S PANEL. Conversely, having a printing group called CHEMISTRY doesn't mean that there is, or needs to be, a panel by that name. (It may prevent confusion if you avoid giving your printing groups the exact same names as your panels. If the panel you set up in Panel Definition is called Lipid Panel, consider calling the printing group LIPID STUDIES. It will help you keep the method of ordering distinct in your mind from the manner of reporting.)

There is always a choice in creating a software program: the choice between a light switch and a Boeing 747. The light switch, you see, is a very simple mechanism, which involves very little training time. But the only thing you can do with a light switch is turn the lights on or off. On the other hand, the 747 is a wonderful mechanism. You can fly all over the world in it! Carry passengers and cargo! Show movies! Unfortunately, it's extremely complex and involves a large amount of training. What everyone wants in a software tool is something as simple as a light switch, but as versatile as a 747. It is rather difficult to do this.

To attempt to resolve the light switch-or-747 problem, we've arranged layers of complexity in SchuyLab, most of which are invisible to the casual user, and we've set up system defaults that produce the effects most people want. For example, most people will want the Cholesterol results to print out in a group titled CHEMISTRY if it's the only lipid test ordered (say, as part of a Chem 18 panel). If a Chem 18 panel and a Lipid Panel were both ordered, however, most people would want the Cholesterol results to appear under the LIPID STUDIES title (along with the Triglycerides, HDL, LDL, etc..), and ***not*** appear in the CHEMISTRY section of the report.

To allow this to happen automatically, SchuyLab has established a printing protocol that relies on the sequence in which the groups are arranged in the report. If a test appears in several printing groups, it will print out in every group that contains it. However, if the "Do not print duplicate tests" check box is selected for that first print

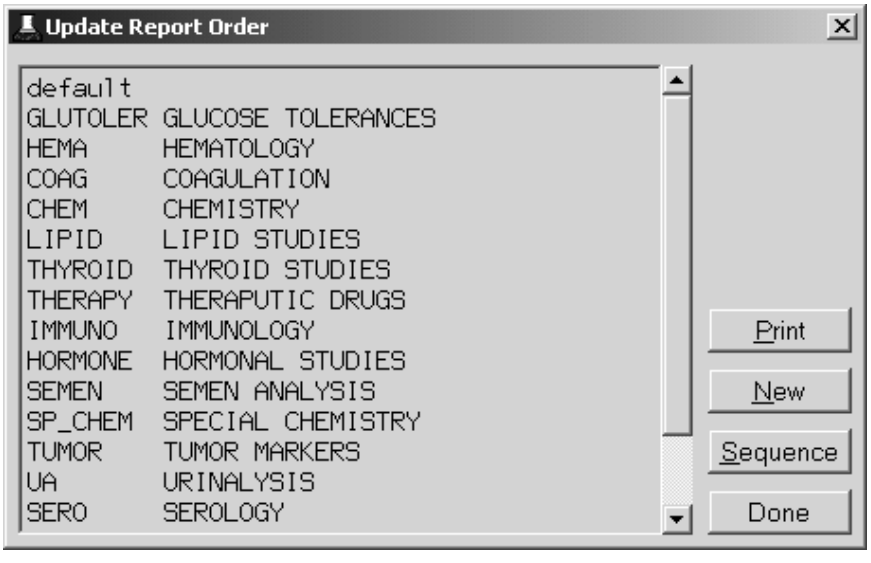
group, but the next group with that test is active, then the test will be printed there instead. Had we done that for the Cholesterol test, described above, then the test results for Cholesterol would be "stolen" from the CHEMISTRY heading and printed in the LIPID STUDIES heading; had we ***not*** selected the "Do not print duplicated tests" check box in the Chemistry group, Cholesterol would print out in both the CHEMISTRY and LIPID STUDIES headings.

In order for the group on a report to "steal" a test from one above it, the lower group must first be activated. What activates a group is the presence of a test which belongs entirely to that group. In the example given of the LIPID STUDIES printing group, Cholesterol, and probably Triglycerides, belong both to the CHEMISTRY heading and to the LIPID STUDIES heading. But HDL, LDL and VLDL are not listed as members of any printing group other than LIPID STUDIES. When SchuyLab becomes aware of the fact that one of these tests needs to print, the LIPID STUDIES group is activated, to give these tests a heading under which to print. Once activated, the LIPID STUDIES group, being below the CHEMISTRY group on the page, will "steal" Cholesterol and Triglycerides from the latter group to complete its own set of tests.

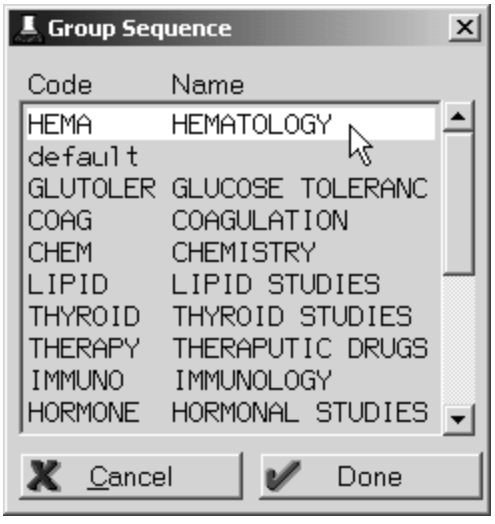
Create or Change a Printing Group

Select **F8. Tools.**
Select **Set-Up.**
Select **Test & Panel Definition.**
Select **Report Order.**

SchuyLab displays the Update Report Order box.



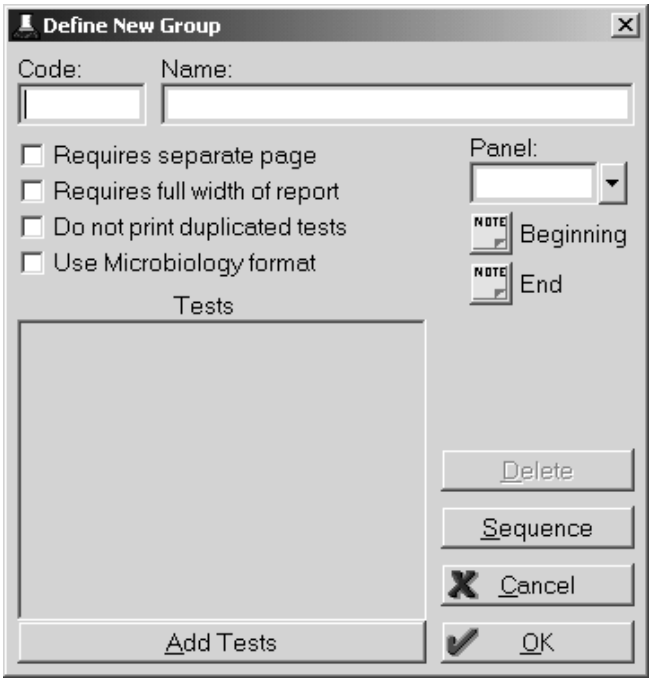
The Update Report Order box displays all the printing groups currently defined for the system. They're listed in the order in which they print out on the patient report. To change that order, select the Sequence button. SchuyLab displays the Group Sequence box, with the printing groups listed.



Select the printing group you want to move (SchuyLab will highlight it in dark grey), then move the cursor to the spot on the list you want it to be and click the mouse. Repeat as desired. When you're satisfied with the order, select **Done.**

To Establish a New Printing Group

From the Update Report Order box, select **New.** SchuyLab displays the Define New Group box.



Complete the fields in the box as described below.

Code Type up to eight characters for the code name for this group. This code will appear in lists and scroll boxes. You should use only letters, numbers, and the underline "_" character.

Name This is the heading that will print out on the report itself.

Panel Your lab may wish to have a panel's test results print under the header of that panel's name, if the doctors expect the results that way. By selecting a panel in this field, you tie this printing group to that panel; the group will be used whenever the panel is ordered.

Add Tests Select the button **Add Tests** to display the Add Tests(s) to Group box, containing a list of all the tests configured in your system. Scroll through this box, highlighting the tests you wish to have appear under this heading on the report. When you've selected the tests, select **Done.** SchuyLab will display a list containing those tests you just selected. If you wish to add more tests, select the **Add Tests** button again and repeat the above procedure.

If you wish to remove a test: from the Define New Group box, select the test you wish to remove. SchuyLab will ask you to confirm this action. Answer **Yes** and the test will be removed from the group.

Sequence Select the **Sequence** button to arrange the order of tests as they will print in this group on the report. SchuyLab displays the Sequence box, listing the tests in the group. To change the position of a test relative to the other tests in the group, select that test. A dark grey bar will highlight it. Point the cursor to the position you wish that test to occupy and click the first button on the mouse. The test you selected will be moved to that position. Continue until the tests are in the correct order. Select **Done.**

Notes: Beginning / End Select the yellow notepad to record notes or user comments concerning this report group. This is where you would type a message to print out each time this test is reported. If you choose the beginning note pad, the note will print before that group is printed. If you ass the note at the end, it will print after the report group.

Notice that there are four check boxes in the Define New Group box.

- **Requires separate page**
  Selecting this option inserts a page break in the patient report just before this printing group, causing it to be printed on its own page.

- **Requires full width of report**
  In order to discuss this option, you first have to consider how your Specimen Report currently looks. Do the group headings always extend all the way across the page?
  [If you aren't sure, you can find out by checking under **F8. Tools, Set-Up, Report Setup, Patient Report.** In the Setup Patient Report box you will find four reports; Cumulative, Accession, Send Home and Microbiology. If the form type under Accession is "RPTSPEC2", select the Setup. If the screen displayed by SchuyLab has an entry field labeled "2 Column Threshold", the number in that field determines whether your reports ever shift between one and two column formats. If the number in that field is "0", your reports always extend all the way across the

field. If there is a number other than zero in that field (usually 14 or 16), then that sets the number of test results below which the group occupies a single column. If the entry field does not exist, or the name under the Accession Report is something else, then you have a customized report.]

Checking this check box mandates that this group will ***always*** extend all the way across the page, with each test occupying a separate line, overriding alternatives set at other points in SchuyLab. Its most commonly checked for Microbiology and for Hormone Studies, which have a large number of notes and specialized ranges.

- **Do not print duplicated tests**

We've already dealt with this option to some extent in the overview of this section, so you'll have to put up with some repetition. Here are the printing rules:

#1. A test will print out in the first group to which it's assigned.
#2. If the test is assigned to more than one group, it will print out in all of them by default.
#3. If the "Do not print duplicated tests" check box is checked, the test will not print out in that group if it's also in another group further down on the page.
#4. If several groups contain that test, and they all have the "Do not print duplicated tests" check box checked, the test will print out in the bottommost group.
#5. If several groups contain that test, and all except one has the "Do not print duplicated tests" check box checked, the test will print out in that one group, no matter where it is located on the page.
#6. What causes a group to come into being (and be printed on the patient report) is the presence of a test which is proprietary to that group.

- **Use Microbiology format**

  This format is used on cultures and places an blank line between the test name and the isolate(s) found on the Patient result form. For more information see Appendix, Microbiology

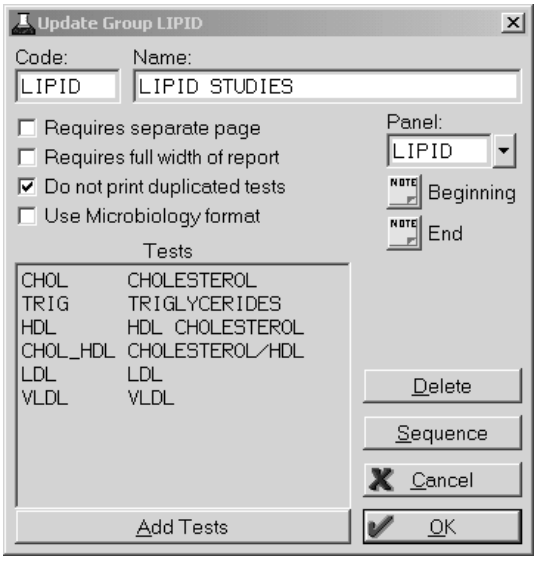
When all is arranged satisfactorily, select OK. SchuyLab returns to the Update Report Order box. Select Done to return to the Define Tests menu screen and from there you can simply click on the next icon and get to work.

Panel Specific Print Groups

Remember in the beginning of this section where we said that print groups are not related in any way to the tests and panels you've set up? Well, we lied, sort of.
Panel Specific Print Groups are panels that can be attached to a specific Printing Group. The Printing Group prints ***only if*** that panel has been ordered. So if, to take an example, the Lipids Printing Group has the Lipid Panel to trigger it, then if you order the Lipid Panel, that group prints – and if you order each individual test that belongs to that panel, it won't. The tests print elsewhere, presumably in Chemistry. We say "presumably" because, to guarantee that every test prints every

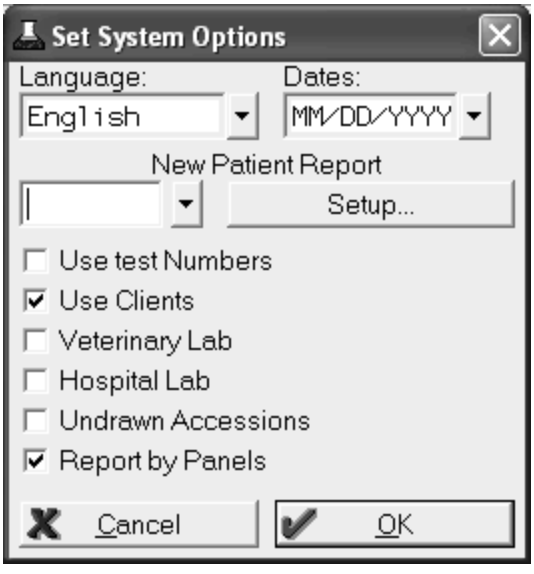
time, any test in a Panel-Triggered Printing Group is duplicated in the default printing group.

To set up the trigger panel print group go to the Update Report Order (**F8, Tools, Setup, Test & Panel Definition, Report Order).** We will use the LIPID panel as our example so choose the LIPID STUDIES group and you will see a box under "Panel". Click on the arrow and scroll down until you locate LIPID, click on it and it fills in the panel box.



There is one more thing you will need to know about Panel Specifics. If you should have the Export feature, your Panel Specifics do not print. If you have not listed those tests under another print group (i.e. Chemistry), your test will print at the end of the report. On the other hand, if you have a report group called (for example) Lipid Studies; your Lipid Panel will print under that heading, whether you have ordered the panel or the individual tests.

There is one final way to print panel names. But you need to understand that it will affect the entire report. Go to F8, Tools, Setup, Parameter ID, Optional Processing.



When you mark the box "Report by Panels" your result form will print using the panel names instead of the generic headings such as Chemistry, Hematology, etc. Another thing to note, this will NOT change any old reports. They will only print in the original format.

Sec. 5 - Worksheets

Overview

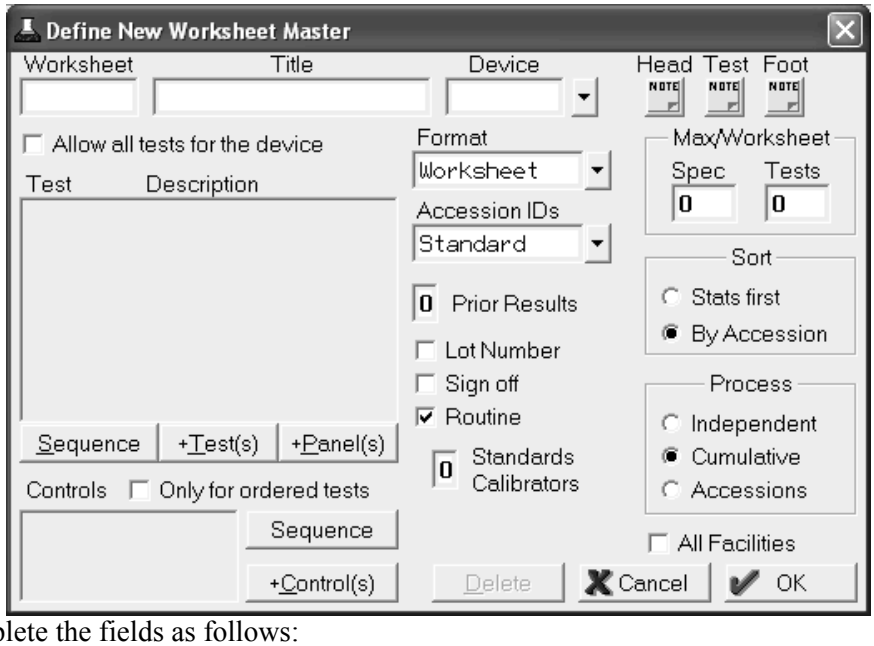
Worksheets form an indispensable part of your daily routine. They serve three main purposes. First, for test results that must be entered by hand, worksheets are an easy, efficient means of entering the results for a large number of specimens. Second, for instruments that have uni-directional (one-way) interfaces with SchuyLab, worksheets can be used as checklists: they present the specimen ID numbers to be entered at the instrument, and they help you track which specimens have been done. Finally, for instruments with bi-directional interfaces with SchuyLab, worksheets can be used as loadlists: they can transmit names, specimen ID numbers, and orders directly to the instrument.

Master Worksheet

SchuyLab comes equipped with many master worksheets already available to you. You can customize them to your lab's needs by selecting the worksheet you want to change and then making the changes (add or delete tests, change printing format or the process for example). But there are always those tests that you do that you will need to track (for example ESR, or Sed Rates)

Go to **F5: Worksheet**
Define Master
Select New

You will see the **Define New Worksheet Master** window.



Complete the fields as follows:

Worksheet	**This is the name of your worksheet. There is a maximum of 8 characters.**
Title	**This is a more complete name of the worksheet.**
Device	**Which instrument do you intend to use with this worksheet?**
Head, Test, Foot	**These are notes that can be printed out each time you select and print this worksheet.** Head – **will print below the worksheet information (worksheet name, number, date, etc.). This can contain information such as the expiration date of your controls.** Test – **This can be used in Microbiology (for example) to define more tests for a culture.** Foot – **Anything that can be included in the head note, could also be put in the foot note area. It would then be printed at the bottom of each page of the worksheet.**
Allow all tests for the device	**An option that was implemented for Allergy testing. In the example above, the** Device **field is set to "ACE". In this instance, any test whose** Device**: field matches "ACE" will be included on the Worksheet. If this option is used, the Tests fields on the Worksheet should be left empty. This allows larger worksheets that will include**

more tests than could be configured normally. However, this option is really only necessary if the worksheet requires more than 300 tests on it. Also, in an Allergy testing lab, this also makes constructing your Worksheet Masters much easier than the alternative of selecting the 1,000 tests that need to appear on the worklist.

Format — **Chose from Checklist, Worklist, Test List, Packed List, Load List, Line by Test, Spreadsheet or Line by Accession.**

Max/Work sheet — **Has two criteria you can use to limit how many specimens appear on your worksheets.**

- Spec **limits the total number of specimens at a time, and now, because of the improved memory capabilities of Windows, can be set as high as 9999. An entry of 0 implies no limit.**

- Tests **limit the worksheet size by the number of ordered tests that appear on it. This is handy on instruments like the Tosoh AIA series that requires a place on the specimen chain for a reagent cup for each test to be performed. If a specimen has enough tests that it exceed this limit, it will be placed on the next worksheet, rather than breaking it across two.**

Accession IDs

Standard – **The accession number that you are using for your lab. This could be a date based number (i.e. 050125002) or a straight number (i.e. 002).**

Daily Number – **Special purpose, do not use**

Specimen – **This is to make use of sub numbers of the main accession (specimen) number where you may have 2 – 3 samples of the same specimen (as in some Microbiology).**

Test / Description — **Shows the test code and test description of the tests for this worksheet.**

Sort — **SchuyLab can sort your accessions by either their accession number or will list any Stats first.**

Process

Three options available

Independent - **With an Independent Worksheet, your accessions will not be repeated on a new worksheet, even if the results have not been accepted.**

Cumulative - **With a Cumulative Worksheet, your accessions will be repeated on a new worksheet, unless the results have been accepted.**

Accessions - **When you create an Accession Worksheet, a window will pop up for you to enter an accession number range. This worksheet will only include un-resulted tests for specimens within this range, thus giving you greater control over what you want to appear on your work lists. Also this can be quite handy for building Recheck worksheets, so you find out what tests are still pending from only the specimens you ran this morning. At the same time the specimen range would prevent tests that you still needed to run this afternoon from showing up.**

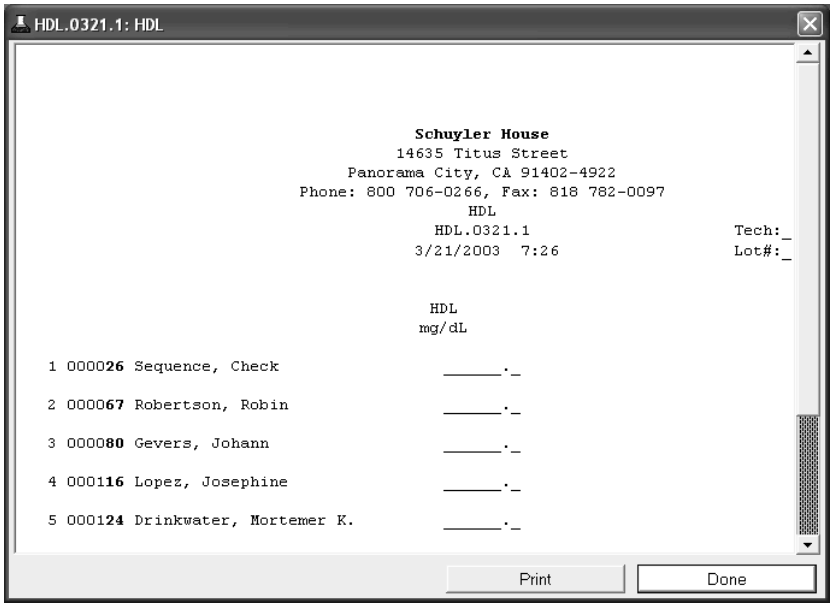
Only for ordered tests	**Can be used for worksheets where Controls are included. This option prevents tests that don't have any patient orders from appearing on the work list. For example, you run PSA, TSH, and Free T4 on your Chemistry Analyzer. However, you receive orders for these tests maybe once or twice a week. On days when you have no orders, you don't want to waste reagents on running Controls for these tests. This option prevents the worksheet from printing when there are no tests ordered.**
Lot Number	**Adds the line named "Lot #" that a tech can write the QC lot number on.**
Sign Off	**Adds a line for the Tech to sign (if your lab uses this item).**
Routine	**When this box is marked and there are tests pending, this worksheet will be printed (along with all other worksheets marked) when you click on the** RQutine Print **button.**
Standards and Calibrators	**When this box is marked, SchuyLab will leave space at the top of the worksheet for the calibrators. This should only be used if this worksheet is to be transmitted as a loadlist.**

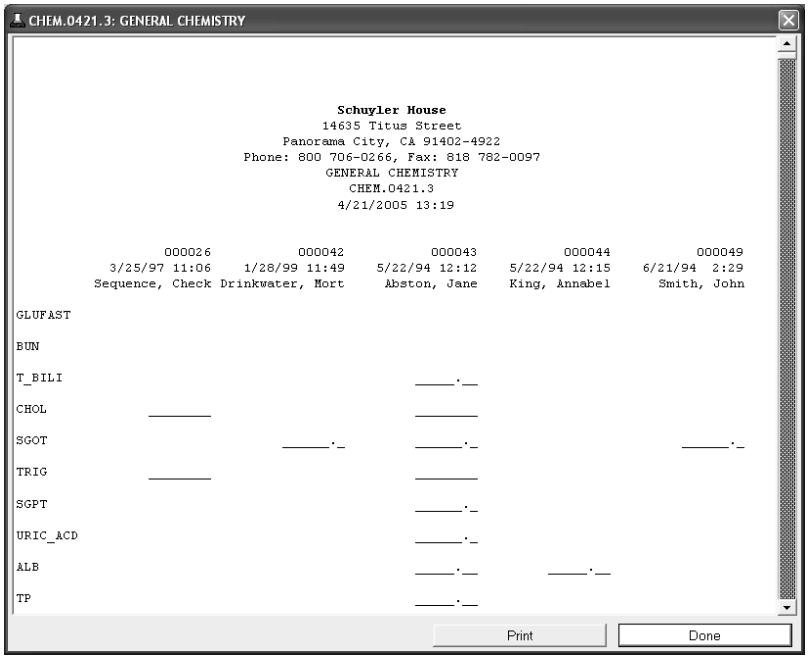
Formats

The format determines what your worksheet look like. Following is how each format prints out.

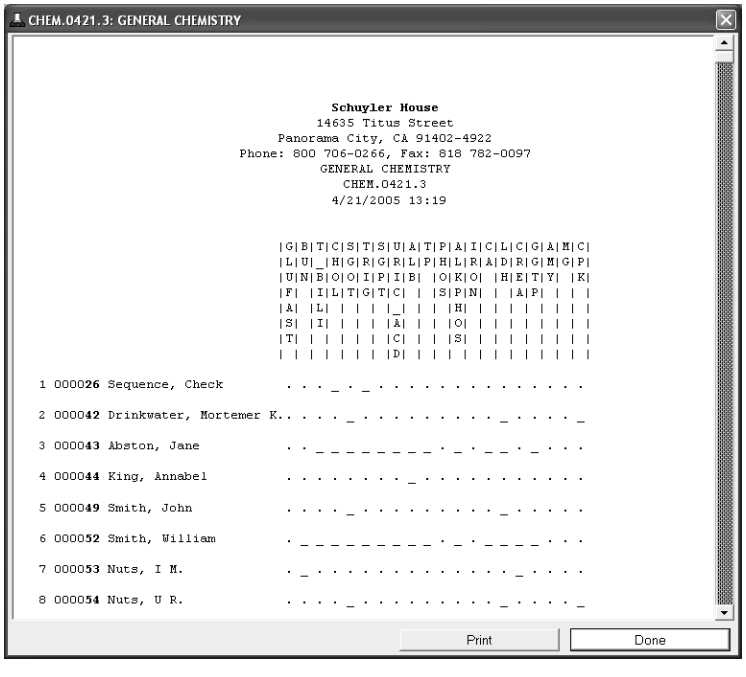
Worklist

The worklist prints the accession number, patient's name and and a list the tests. Depending on how many tests are in your worksheet determines where the tests are listed, either across the top (as in the first picture) or down the side of the paper, with the accessions and patient;s name across the top (as in the second picture). The lines under the test(s) (as in the first picture) or under the patient's name (as in the second picture) indicates the test has been ordered and gives you room to write down the results. You could use this format for those instruments that are NOT interfaced to SchuyLab.



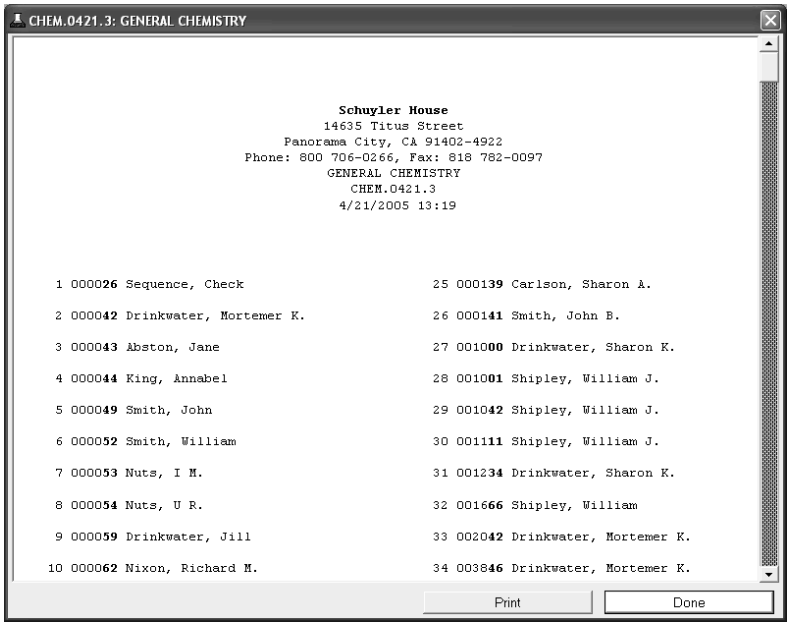

CHEM.0421.3: GENERAL CHEMISTRY
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
GENERAL CHEMISTRY
CHEM.0421.3
4/21/2005 13:19
000026 000042 000043 000044 000049
3/25/97 11:06 1/28/99 11:49 5/22/94 12:12 5/22/94 12:15 6/21/94 2:29
Sequence, Check Drinkwater, Mort Abston, Jane King, Annabel Smith, John
GLUFAST
BUN
T_BILI
CHOL
SGOT
TRIG
SGPT
URIC_ACD
ALB
TP
Print
Done

Checklist


CHEM.0421.3: GENERAL CHEMISTRY
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
GENERAL CHEMISTRY
CHEM.0421.3
4/21/2005 13:19
1 000026 Sequence, Check
2 000042 Drinkwater, Mortemer K.
3 000043 Abston, Jane
4 000044 King, Annabel
5 000049 Smith, John
6 000052 Smith, William
7 000053 Nuts, I M.
8 000054 Nuts, U R.
Print
Done

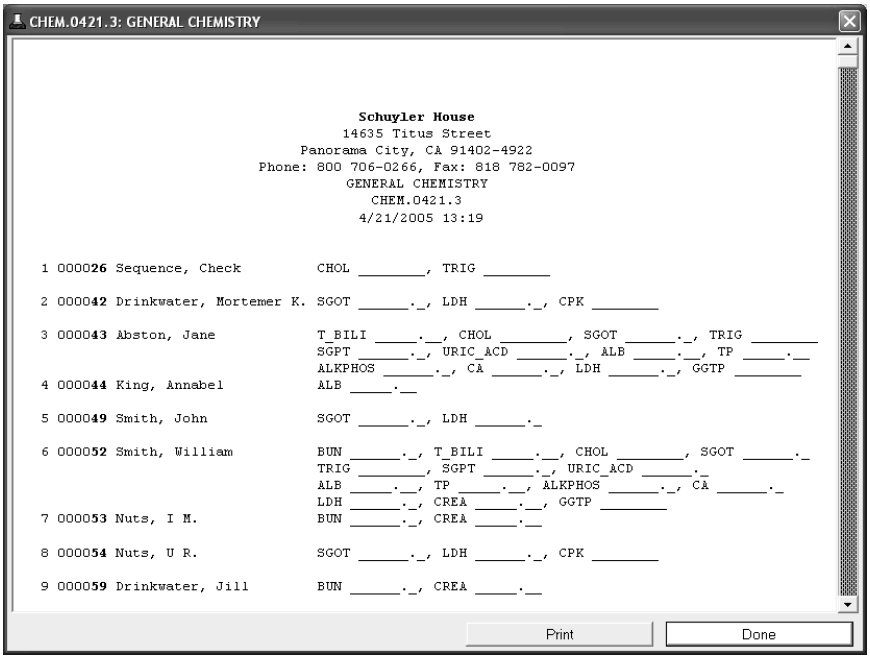
The checklist prints the accession number, patient's name and lists the tests across the top of the page. The line under the test(s) means that that test has been ordered. This is used to check that you have all the accessions and can be used to place them in the proper order on your instrument.

Load List



The Load List prints only the accession number and the patient's name. This list is used as a guide to loading the instrument.

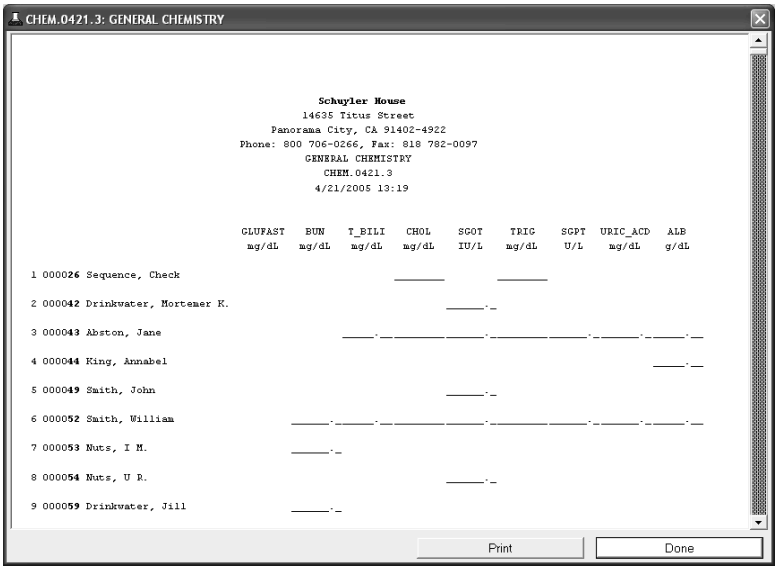
Packed List


CHEM.0421.3: GENERAL CHEMISTRY
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
GENERAL CHEMISTRY
CHEM.0421.3
4/21/2005 13:19
1 000026 Sequence, Check CHOL _____, TRIG _____
2 000042 Drinkwater, Mortemer K. SGOT _____._, LDH _____._, CPK _____
3 000043 Abston, Jane T_BILI _____.__, CHOL _____, SGOT _____._, TRIG _____
SGPT _____._, URIC_ACD _____._, ALB _____.__, TP _____.__
ALKPHOS _____._, CA _____._, LDH _____._, GGTP _____
4 000044 King, Annabel ALB _____.__
5 000049 Smith, John SGOT _____._, LDH _____._
6 000052 Smith, William BUN _____._, T_BILI _____.__, CHOL _____, SGOT _____._
TRIG _____, SGPT _____._, URIC_ACD _____._
ALB _____.__, TP _____.__, ALKPHOS _____._, CA _____._
LDH _____._, CREA _____.__, GGTP _____
7 000053 Nuts, I M. BUN _____._, CREA _____.__
8 000054 Nuts, U R. SGOT _____._, LDH _____._, CPK _____
9 000059 Drinkwater, Jill BUN _____._, CREA _____.__
Print
Done

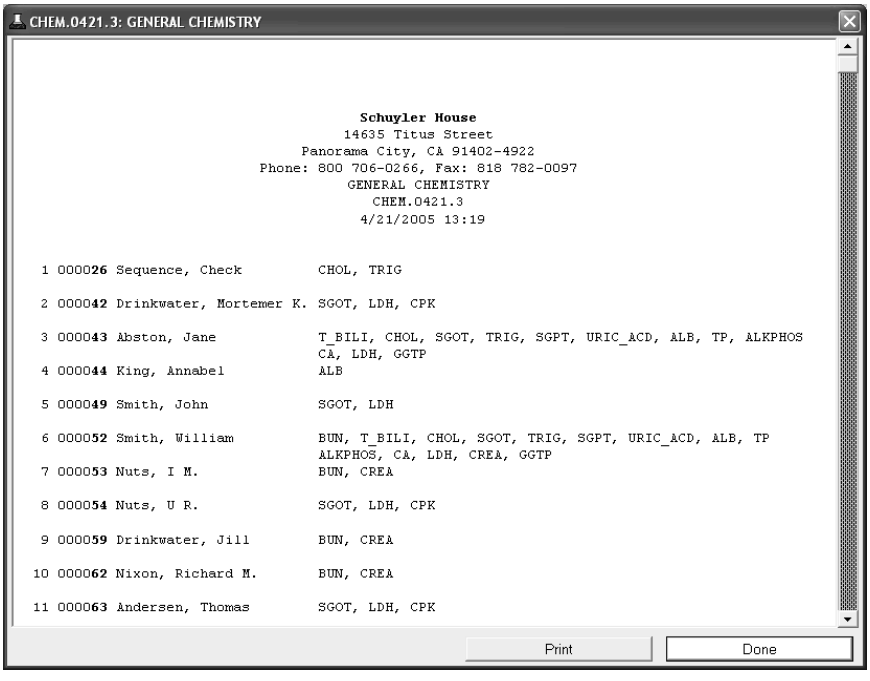
The Packed List prints the accession number, patient's name and the test(s) with lines to write the results in. This differs from the Worklist in that only the tests ordered are listed instead of all the tests for this worksheet.

Spreadsheet

The spreadsheet format was developed for the tech who wants to have lots of space to write the results and notations on the worksheet. The test names are listed across the top of the page with lines under the ordered tests. In the two pictures below, think of them as side by side so you would have one long piece of paper.

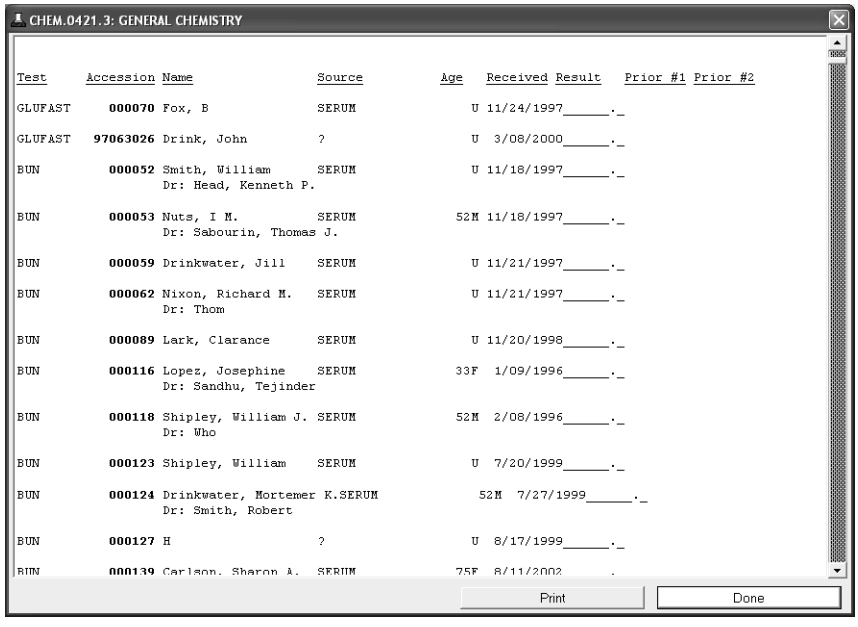


Test List


CHEM.0421.3: GENERAL CHEMISTRY
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
GENERAL CHEMISTRY
CHEM.0421.3
4/21/2005 13:19
1 000026 Sequence, Check CHOL, TRIG
2 000042 Drinkwater, Mortemer K. SGOT, LDH, CPK
3 000043 Abston, Jane T_BILI, CHOL, SGOT, TRIG, SGPT, URIC_ACD, ALB, TP, ALKPHOS CA, LDH, GGTP
4 000044 King, Annabel ALB
5 000049 Smith, John SGOT, LDH
6 000052 Smith, William BUN, T_BILI, CHOL, SGOT, TRIG, SGPT, URIC_ACD, ALB, TP ALKPHOS, CA, LDH, CREA, GGTP
7 000053 Nuts, I M. BUN, CREA
8 000054 Nuts, U R. SGOT, LDH, CPK
9 000059 Drinkwater, Jill BUN, CREA
10 000062 Nixon, Richard M. BUN, CREA
11 000063 Andersen, Thomas SGOT, LDH, CPK
Print
Done

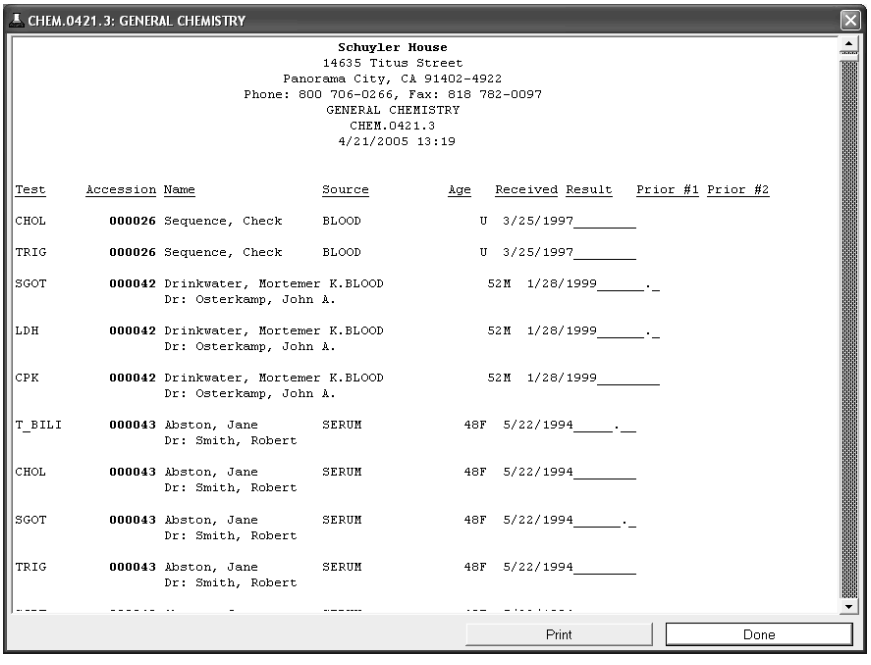
The Test List prints the accession number, patient's name and lists the tests that have been ordered.

Line by Test


CHEM.0421.3: GENERAL CHEMISTRY
Test Accession Name Source Age Received Result Prior #1 Prior #2
GLUFAST 000070 Fox, B SERUM U 11/24/1997_____._
GLUFAST 97063026 Drink, John ? U 3/08/2000_____._
BUN 000052 Smith, William SERUM U 11/18/1997_____._
Dr: Head, Kenneth P.
BUN 000053 Nuts, I M. SERUM 52M 11/18/1997_____._
Dr: Sabourin, Thomas J.
BUN 000059 Drinkwater, Jill SERUM U 11/21/1997_____._
BUN 000062 Nixon, Richard M. SERUM U 11/21/1997_____._
Dr: Thom
BUN 000089 Lark, Clarance SERUM U 11/20/1998_____._
BUN 000116 Lopez, Josephine SERUM 33F 1/09/1996_____._
Dr: Sandhu, Tejinder
BUN 000118 Shipley, William J. SERUM 52M 2/08/1996_____._
Dr: Who
BUN 000123 Shipley, William SERUM U 7/20/1999_____._
BUN 000124 Drinkwater, Mortemer K.SERUM 52M 7/27/1999_____._
Dr: Smith, Robert
BUN 000127 H ? U 8/17/1999_____._
BUN 000139 Carlson, Sharon A. SERUM 75F 8/11/2002
Print
Done

The Line by Test prints the test name, the accession number, patient's name, age, the source of the specimen, received date and up to two prior results (if the master worksheet is specified for that). It also prints the patient's doctor and any comments for this specimen. As you can see, SchuyLab prints out all of one test before it prints the next.

Line by Accession


CHEM.0421.3: GENERAL CHEMISTRY
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
GENERAL CHEMISTRY
CHEM.0421.3
4/21/2005 13:19
Test Accession Name Source Age Received Result Prior #1 Prior #2
CHOL 000026 Sequence, Check BLOOD U 3/25/1997
TRIG 000026 Sequence, Check BLOOD U 3/25/1997
SGOT 000042 Drinkwater, Mortemer K.BLOOD 52M 1/28/1999
Dr: Osterkamp, John A.
LDH 000042 Drinkwater, Mortemer K.BLOOD 52M 1/28/1999
Dr: Osterkamp, John A.
CPK 000042 Drinkwater, Mortemer K.BLOOD 52M 1/28/1999
Dr: Osterkamp, John A.
T_BILI 000043 Abston, Jane SERUM 48F 5/22/1994
Dr: Smith, Robert
CHOL 000043 Abston, Jane SERUM 48F 5/22/1994
Dr: Smith, Robert
SGOT 000043 Abston, Jane SERUM 48F 5/22/1994
Dr: Smith, Robert
TRIG 000043 Abston, Jane SERUM 48F 5/22/1994
Dr: Smith, Robert
Print
Done

The Line by Accession prints the test name, the accession number, patient's name, age, the source of the specimen, received date and up to two prior results (if the master worksheet is specified for that). It also prints the patient's doctor and any comments for this specimen. As you can see, SchuyLab prints out one test on one line, but the difference from Line by Test, is it prints all the tests for the same accession before it goes to the next.

Create or Access Worksheets

Routine Print is used to generate all the worksheets that have been defined as "routine" -- that is, the ones you know you're most likely to see every day. Selecting this icon causes SchuyLab to automatically find the "routine" Master Worksheets, generate new worksheets based on those masters, and print out the worksheets, if there are tests pending ... while you get a cup of coffee.

Select Worksheet is used to select a single worksheet -- one at a time, rather than in bulk. The Select Worksheet icon actually covers two different types of worksheet management processes:

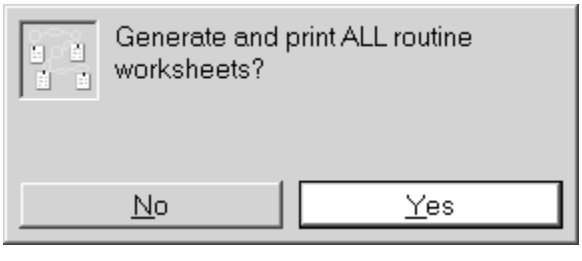
- ***Generate a New worksheet.*** This uses an existing Master Worksheet as a template to create a new worksheet, with the test and patient data currently entered into the system.

- ***Retrieve an available worksheet.*** This permits the user to access a worksheet that had previously been generated either by the Routine Print icon or the Select Worksheet icon.

Once you select a worksheet, its designation appears in the nameplate area of the screen. The other icons on this screen may be applied to that worksheet: Print, Append, Enter, Delete, View.

Routine Print

1. Select **F5. Worksheet.** SchuyLab displays the Worksheet Functions menu screen.
2. Select **Routine Print.** SchuyLab displays a dialog box, asking if you want to print ALL routine worksheets.



3. Select **Yes.** SchuyLab begins printing the routine worksheets for the day.

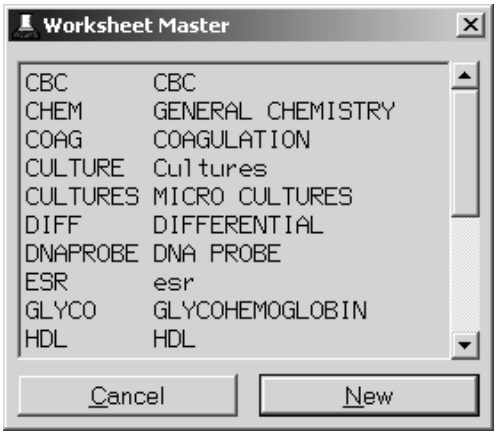
Selecting a Single Worksheet

1. Select **F5. Worksheet.** SchuyLab displays the Worksheet Functions menu screen.
2. Select **Select Worksheet.** SchuyLab displays the Worksheet ID box.

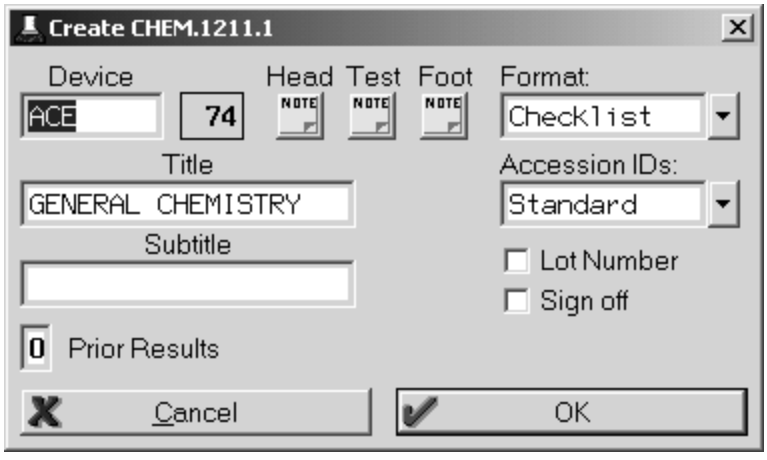
3. Decide whether you want to generate a new worksheet or retrieve an already-existing worksheet from the system.

To Generate a New Worksheet

1. Select New. SchuyLab displays the Worksheet Master box.



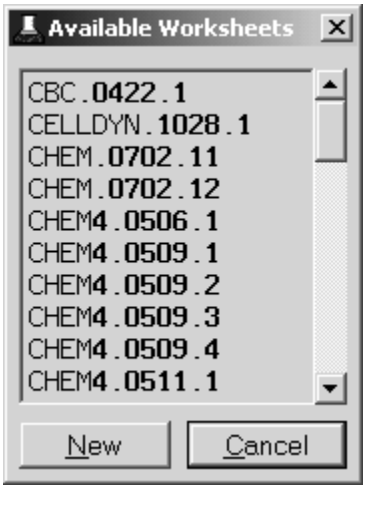
2. Select one of the entries in the box. SchuyLab displays the Create [Worksheet Designation] box.



3. At this point you may choose to change the format of the worksheet from the default format defined as part of this Master Worksheet. If so, select the new format from the Format pull-down scroll box.When you have completed the fields (optional) and made any changes you wish in the format (also optional), select OK. SchuyLab returns you to the Worksheet Functions screen, and displays the designation of the worksheet in the nameplate area.
4. To print the worksheet you've just generated, select the Print Worksheet icon. SchuyLab asks you if you truly want to print your worksheet (and gives you one last chance, for that print job only, to alter the format). Select Yes.

Retrieve an Existing Worksheet

1. Select **List.** SchuyLab displays the Available Worksheets box.



2. Select one of the entries in the box. SchuyLab returns you to the Worksheet Functions Screen, and displays the designation of that worksheet in the nameplate area.

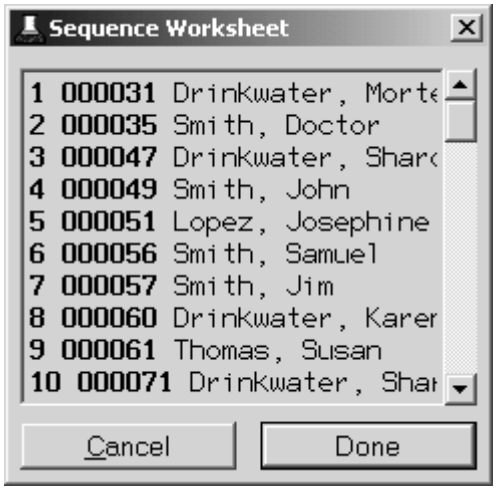
OR:

1. Type the designation of the worksheet you wish to select into the field marked "ID". Use the full designation, including the date (e.g., "CHEM4.0320.1" for the first Chem4 worksheet generated on March 20).
2. Select OK.
3. SchuyLab returns you to the Worksheet Functions Screen, and displays the designation of that worksheet in the nameplate area.

Editing and Printing the Worksheet

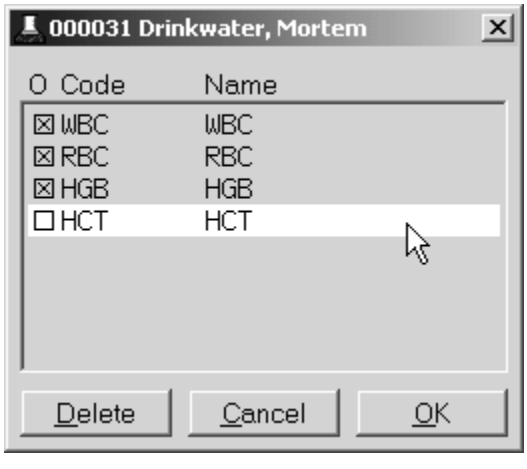
You may occasionally need to edit a worksheet, for the purposes of a particular run, before transmitting it to the instrument. To do this, select the **Edit Worksheet** button. SchuyLab displays the [Name of Worksheet] box, listing all the specimens on that worksheet, with the patients' names.

From this box, you can edit the worksheet. If, for instance, you needed to change the sequence of specimens (bearing in mind that the instrument will run them in the same sequence as they appear on the worksheet), select the **Sequence** button. SchuyLab displays the Sequence Worksheet box.



You can re-sequence any of the specimens. Simply click the mouse on the specimen you wish to move, then click at the spot you want it to be. When the sequence is satisfactory, select **Done.**

If you needed to order or cancel tests on a specimen, or if you wanted to delete the specimen from the worksheet, select that specimen from the list. SchuyLab displays the box for that specimen.



All the tests on the worksheet master are listed. Those tests that were ordered for this specimen are marked with asterisks on the left. Selecting an unordered test will order it, and place an asterisk next to it. Selecting an ordered test cancels it (i.e., removes the asterisk). When done, select **OK.** SchuyLab returns to the [Name of Worksheet] box.

To remove the specimen from the worksheet entirely, select **Delete.** SchuyLab returns to the [Name of Worksheet] box.
Select **OK** to return to the Select Loadlist box. If you wish to print the edited worksheet before sending it to the instrument, select the **Print** button.

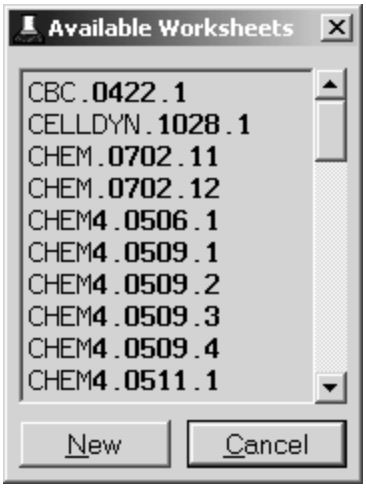
Daily Worksheet Quick List	
1. Select **F5. Worksheet**. SchuyLab displays the Worksheet Functions screen 2. Select **Select Worksheet**. SchuyLab displays the Worksheet ID box	
To generate a new worksheet :	**To retrieve an already existing worksheet :**
1. Select **New** 2. Select one of the entries in the Worksheet Master box. 3. Complete the fields in the Create [Worksheet] box. Select **OK** 4. SchuyLab returns you to the Worksheet Functions screen, and displays the designation of the worksheet in the nameplate area	5. Select **List** 6. Select one of the entries in the Available Worksheets box. 7. SchuyLab returns you to the Worksheet Functions Screen, and displays the designation of that worksheet in the nameplate area

Entering Results

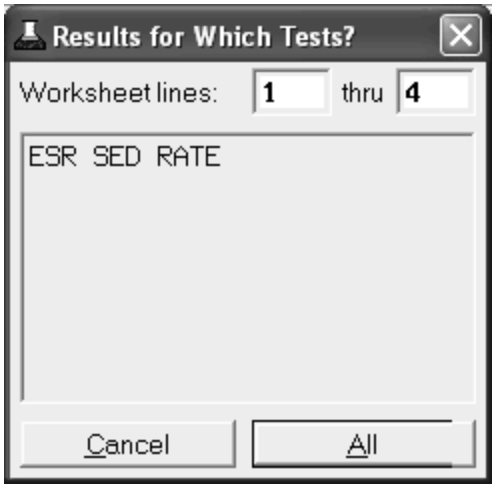
Certain instruments and procedures which are not online to SchuyLab can be run most efficiently on a worksheet format. SchuyLab gives you the option of entering the results from these tests in the same format as the worksheet you used to run them. The first step in this process is to select the specific worksheet you need. The worksheet must already have been created, using the procedures described above.

1. Select **F5. Worksheet.** SchuyLab displays the Worksheet Functions screen.
2. Select **Enter Results.** SchuyLab displays the Worksheet ID box.

3. Select **List** (or type the designation of the worksheet you wish to select into the ID field and select **OK)**. SchuyLab displays the List of Available Worksheets box.



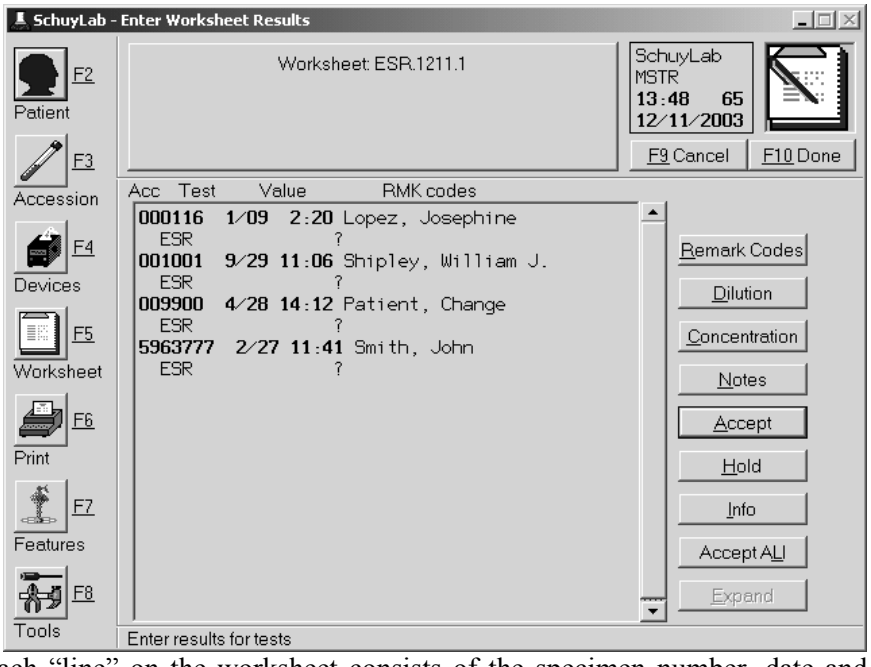
4. Select one of the entries from the list. SchuyLab displays the Results for Which Tests? box. (If you enter a worksheet ID, SchuyLab displays this box directly.)



5. The top of the Results for Which Tests? box shows how many lines -- that is, how many specimens -- are on the worksheet. If a worksheet is very large -- say, 400 tests values to be entered -- there may not be enough memory in your computer to load all the lines of your worksheet. If you wish to enter results into a large worksheet, it's best to do it a few specimens at a time. To do this, type the range of specimens (e.g., 1 to 10, or 11 to 20) into the entry

fields. Of course, if you're dealing with a reasonably sized worksheet, leave the Worksheet Lines fields as they are.

6. Select one or more tests that you want to enter at this time (the rest remain available for later entry), or select **All.** SchuyLab displays the Enter Worksheet Results screen.



Each "line" on the worksheet consists of the specimen number, date and time, and the patient's name, followed by the tests covered by the worksheet. Enter results on this screen exactly as you would for manual entry. (Review Sec. 3, Daily Operations)

Worksheet Result Entry Quick List
To enter results from a worksheet:
1. Select **F5** 2. Select **Enter Results** 3. Enter the appropriate worksheet 3. Select one or more tests, or select **All** 4. Enter the result 5. SchuyLab accepts the result and moves the entry field to the next test

Transmitting Loadlists to Bi-Directional Devices

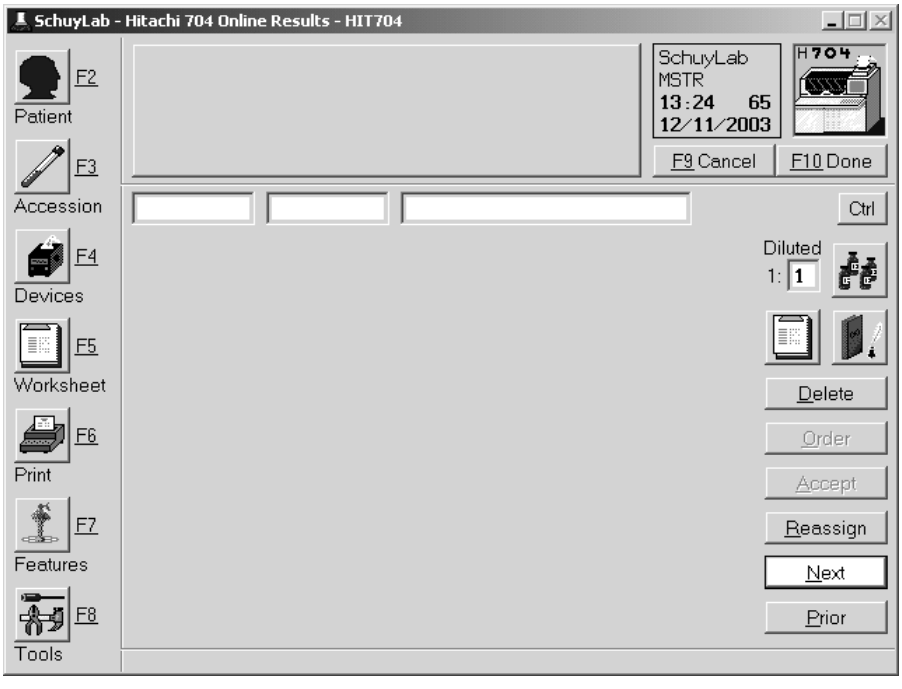
Many of the more advanced lab instruments employ a bi-directional interface -- that is, in addition to sending results to SchuyLab, the instrument is able to receive orders

from SchuyLab. This has the great advantage that orders needn't be input twice (once for SchuyLab, again for the instrument). The patients' names, specimen ID numbers, and the tests to be done are transmitted to the instrument; the tests are then run, and the results are transmitted back.

The transmission from SchuyLab is done using a worksheet. Once you've created the worksheet for this day's tests, it can be sent as a loadlist via SchuyLab's Device Access menu screen.

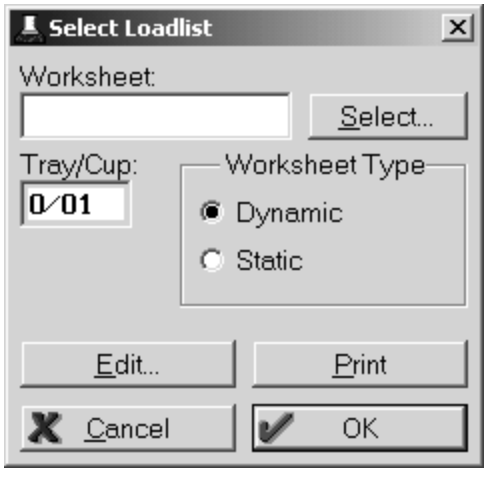
There is some variation in the protocol used, depending on which instruments you have; but the following is by far the most typical procedure:
Through the **F5. Worksheet** menu screen, create a new worksheet for the tests to be run on the instrument that day. This procedure has been described above.

From the **F4. Devices** menu screen, select the icon for the instrument in question. SchuyLab displays the [Instrument] Online Results screen:

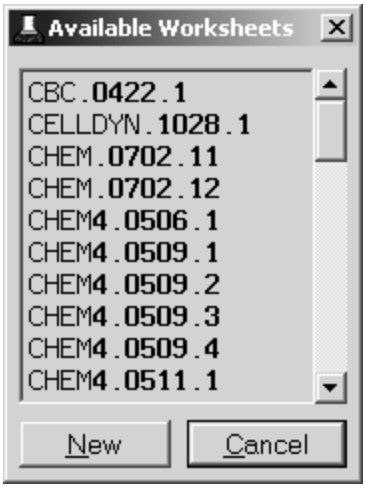


SchuyLab's bi-directional interfaces are usually denoted by a worksheet icon on the right side of the screen (just above the Delete button). This icon transmits the worksheet (loadlist) to the instrument.

Select the worksheet icon. SchuyLab displays the Select Loadlist box.



Select the **Select** button to summon a list of worksheets. SchuyLab displays the Available Worksheets box.



Select the worksheet you've just compiled for today's run. SchuyLab returns to the Select Loadlist box. The name of the worksheet you've just selected will be in the field labeled Worksheet.

If you need to edit or print the worksheet before transmitting it to the instrument, follow the instructions in the section below.

In the field labeled Cup, type the number of the cup you wish to correspond to the first specimen on the worksheet. Generally speaking, the first specimen will be in the first cup, but your lab procedures may vary. Some instruments identify cups using

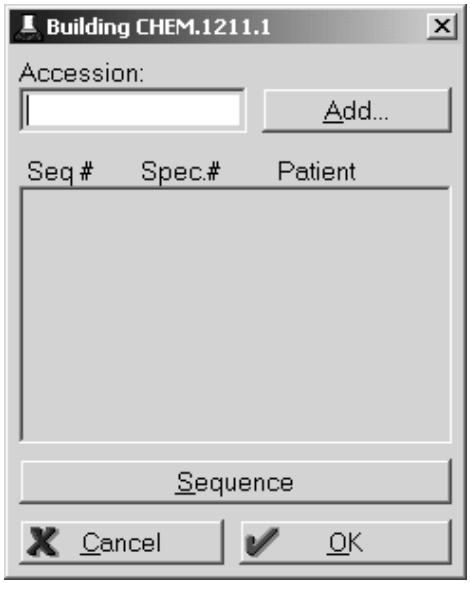
trays or sectors; if so, enter the tray and cup number together (for instance, "2/01" to start with tray 2, cup 1).

When all is ready, select **OK.** SchuyLab will send the worksheet over immediately, or when the test run is started, depending on the instrument.

The **Worksheet Function** screen also has two icons: **Manual Worksheets** and **Worksheet Barcodes**.

Manual Worksheets

Manual Worksheets further increases the versatility of worksheets by allowing you to select exactly which specimens you want to appear on the work list and what order they appear in. In many ways, this improves the capabilities that already existed with Edit Worksheet, but makes the process much easier and intuitive. When you click Manual Worksheet, the Worksheet ID window appears. If you decide to create a New worksheet, it will create a blank tablet for you to select which specimens you want. If you look up an existing worksheet, it will allow you to add on additional specimens easily.

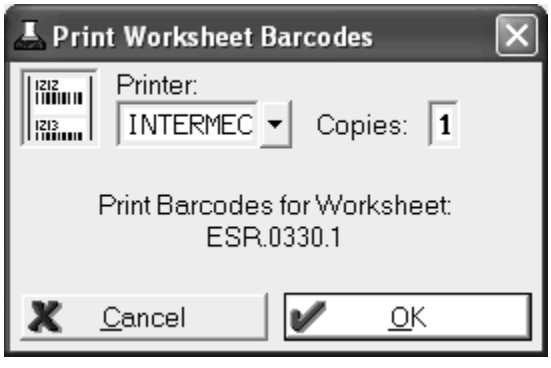


The **Building [Worksheet Title]** window appears. In the **Accession:** field you can type in the Accession Number you want to include and then click the **Add…** button to put in on the worksheet. If leave the Accession: field blank and click **Add…** the **Select Specimen** window (Same as pressing **F3: Specimen**) and you can choose a specimen from the List Active button as well. Once you have selected all the

specimens you want, you can change their order by clicking **Sequence**, or click the Specimen entry itself and order additional tests, remove procedures from the work list, or even cancel the specimen itself.

Worksheet Barcodes

Worksheet Barcodes allows you to print Barcode labels for every specimen on a Worksheet, and can be useful for any procedure that requires Secondary tubes. You will see Print Worksheet Barcodes screen. Select which Barcode printer you want to send the labels to (if you have multiple bar code printers), and the number of copies of each label. Click OK, and they will print out.



These barcodes still work like any other specimen barcode. If they are used on an instrument, the machine will run every test that it is interfaced to run, even if it does not appear on the Worksheet you used to print the Barcode Labels. For example, you build a Glycohemoglobin worksheet and print out barcode labels for all of your secondary tubes. When you place those tubes on the instrument, the machine will run every test ordered on the specimen that it is capable (HGB_A1c and NA and K and…).

Sec. 6 - Quality Control

Overview

Quality Control (along with its elder siblings, Quality Assurance and Quality Management) is a complex topic to delineate. How do you explain to a computer that your shipment of new controls has been delayed by a blizzard, but, in the back of a fridge you found a couple of bottles of a control you'd been using six months ago? You want to go back to that set of control values and reinstate them as your active control for the next four days. Situations like this are easy for a human to understand, but difficult to describe to a computer. Fortunately, other aspects of QC, those which people find most cumbersome (so-called "number crunching"), are easy for a computer to accomplish.

At Schuyler House we've created a QC system capable of handling complex patterns of quality control management without intruding those capabilities on users whose QC needs are simpler.

It works like this:

You define a control in SchuyLab. You tell SchuyLab that this control, "C", has two levels, called Lo and Hi. SchuyLab creates QC files marked "CLo" and "CHi". All levels of a control together constitute a control set.

Now you need to tell SchuyLab what tests you wish to run on this control set. Since the same test can be run on more than one instrument, these tests are defined in terms of a device. That way, SchuyLab can maintain independent QC records for a given test run on multiple instruments. (QC requirements for a test may vary widely between instruments. A Glucose may be stable in your main analyzer for 24 hours, but may need to be recalibrated every 2 hours on the backup machine.).

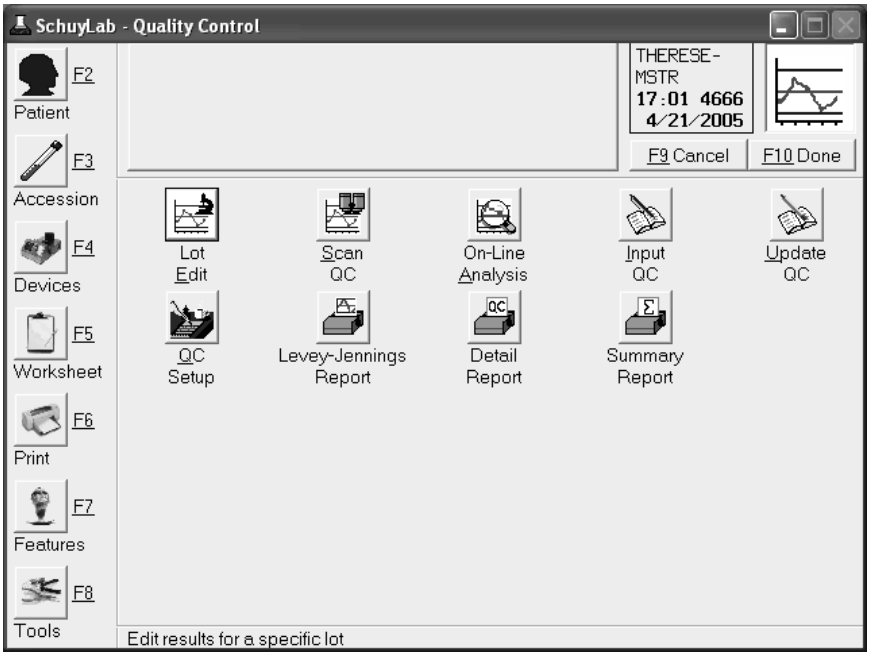
Once you've selected the tests to be run on this control, enter the Lot Numbers and Expiration Dates for your current lot of the control. SchuyLab automatically creates files with that lot number for all the tests on all the devices that use that control.

Now you enter the actual test ranges for the control set. You can choose one of three formats for entering the ranges: High & Low values, Mean & SD, or Mean +/-. When you enter the ranges themselves, SchuyLab displays the numbers in columns on the left side of the screen. The data for the ongoing analysis of your accumulated results are displayed in the columns on the right side of the screen. When a control set is newly defined, of course, those columns are blank, but each time QC results are entered into the system, they're added to the columns. Those accumulated results can, if you wish, be used as the new test ranges at a later time, using the **Baseline**

function. (This is valuable for parallel testing, for very-long-term statistical bases, and several other uses.)
Ideally, you want the QC from your online instrumentation to sort itself neatly into the appropriate files, even if you have several control sets going at the same time. Unfortunately, the analyzer sometimes has an unalterable on-board name for QC. For that reason, we've created Aliases. An alias allows you to make a one-to-one correspondence between the name an analyzer sends over and the name you call a control in SchuyLab. (Unlike adding the instrument names to SchuyLab, this prevents confusion if you run the control on more than one device, each of which has its own name for a control.)

The QC Functions of SchuyLab

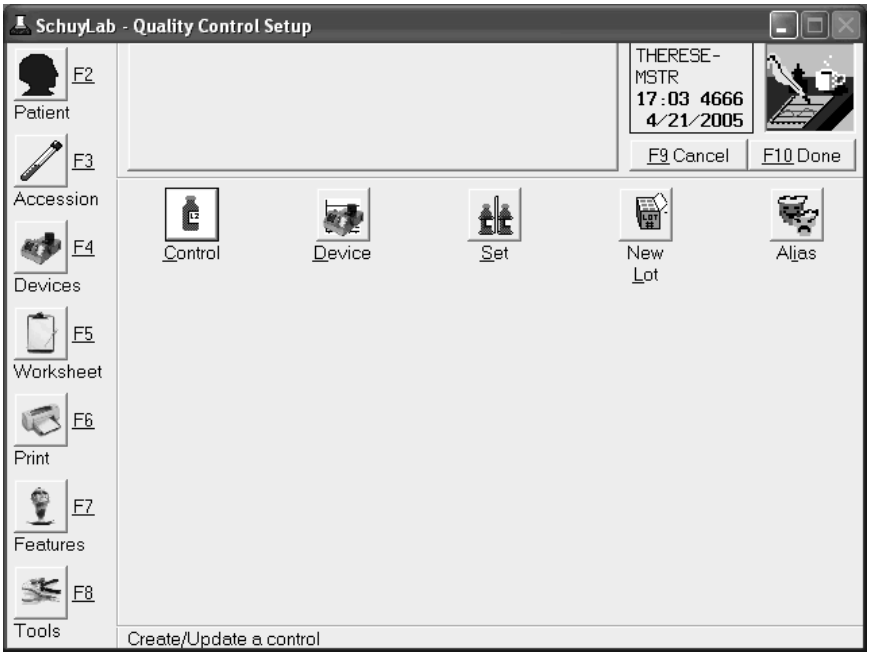
Select **F7. Features.** SchuyLab displays the Special Features menu screen.
Select **QC.** SchuyLab displays the Quality Control menu screen.



QC Setup

The first step in Quality Control is the setup. All the controls, their levels, their lot numbers and expirations, and their ranges, must be defined before any QC results can be accepted. This is done through QC Setup.

From the Quality Control menu screen, select **QC Setup.** SchuyLab displays the Quality Control Setup menu screen.

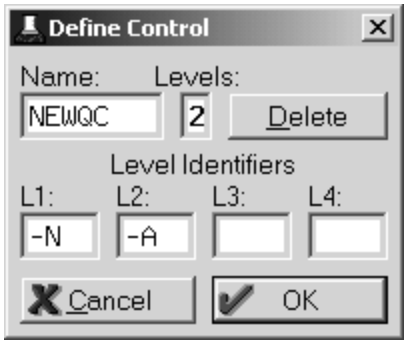


There are five steps to defining a control in SchuyLab. The first two steps, once done, need never be repeated for that particular control. The last three must be repeated for every new lot received.

Select Control

1. Select **Control.** SchuyLab displays the Select Control box.

2. In the field labeled Control, type the name of the new control. (We advise choosing a name that's both descriptive and short: "CBCQC" for instance.) Select **OK.** SchuyLab displays the Define Control box.



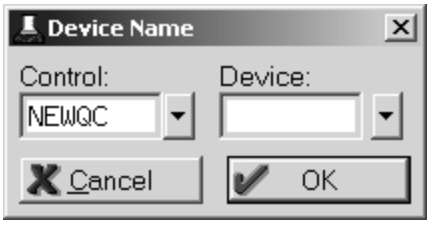
3. In the Levels field, enter the number of levels of the control (from 1 to 4 levels).
4. In the Level Identifiers fields (L1 through L4), enter the names for each level of that control (We recommend using I, II, III, IV or Lo, Norm, High, etc.).
5. When you have completed the fields, select **OK.** SchuyLab returns to the Update Control box.
6. Select **OK.** SchuyLab returns to the Quality Control Setup menu screen.

Select Device

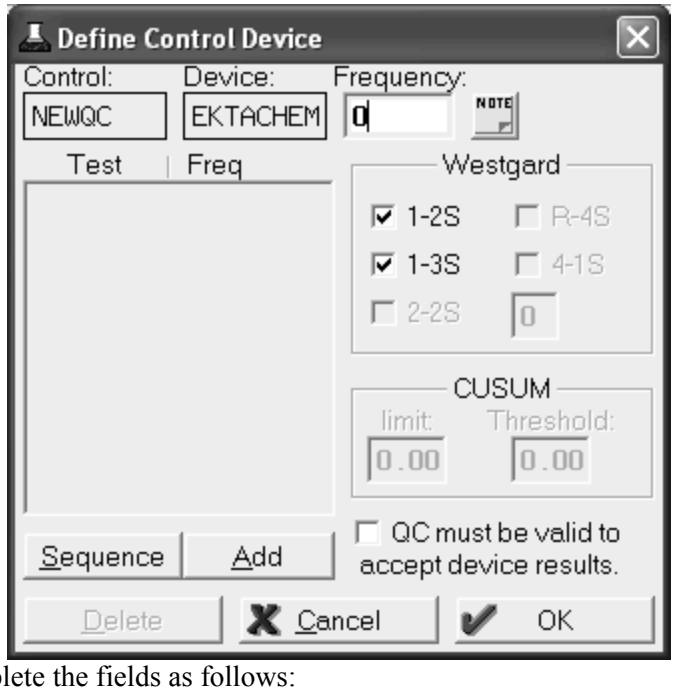
1. Select **Device.** SchuyLab displays the Select Device & Control scroll box, showing all Control-Device sets which have been established.

To link a device to a new set of controls, select **New.** SchuyLab displays the Device Name box, with two scroll fields: one listing all the controls in the system (the one

you've just defined will already be there), the other listing all the device interfaces in your system.



Select a control and a device from their respective lists Select **OK.** SchuyLab displays the Define Control Device box.



2. Complete the fields as follows:

Frequency Enter the interval of hours that the controls need to be run for all of the tests listed. You can leave this box blank if you don't want to apply the frequency Click on a single test to override the default frequency and have a separate run frequency.

Westgard Select the checkboxes for **1-2S** and **1-3S.**

QC must be valid. . . If this box is checked, a patient's results can be accepted if QC is out, but only if the tech signed in has the "Override QC" clearance. If this box is NOT checked, then the patient's result can be accepted by any tech signed in.

Add Select **Add** to display the Add test(s) to device scroll box.
Select those tests on which you wish to run this control.
Select **Done.** SchuyLab displays the selected tests in the Test field. If you select OK without adding any tests, SchuyLab will automatically fill in all tests in the Device4 Setup (Test Translation Table)

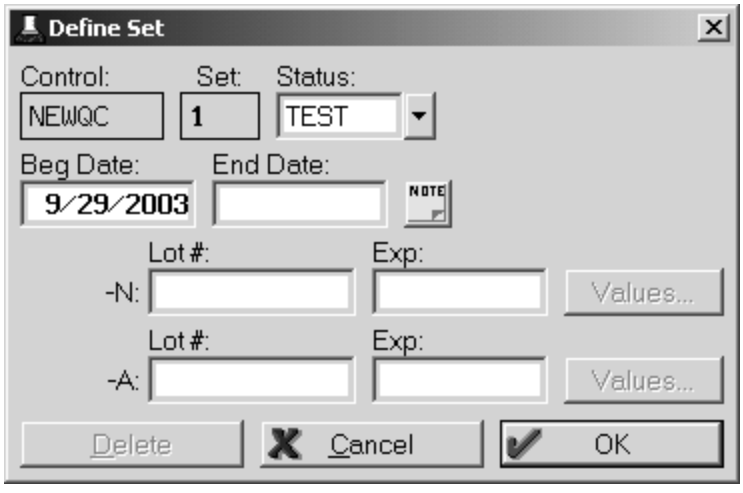
Delete To remove a test from the control, simply select the test.

Sequence Select **Sequence** to change the order of the tests, if necessary. (We recommend putting them in the same order as they appear in the documentation that comes with each new lot.) SchuyLab displays the Test Sequence box.
To move a test, click on the test, move the mouse pointer to the line on which you want the test to appear, and click again to insert the test at that point.
Select **Done** to return to the Define Control Device box.

3. Select **OK.** SchuyLab returns to the Quality Control Setup menu screen.

Select New Lot

1. Select **New Lot.** SchuyLab displays the Select Control Box.
2. Select **List.** SchuyLab displays the Control? box. Select the appropriate control. SchuyLab displays the Define Set box. (A control set consists of a single lot of each level of a control.)



3. In the Status scroll box, select the status of this particular control set as follows:

Select Active: **if you are setting up a currently active lot (which you'll do if you're setting up QC for the first time).**

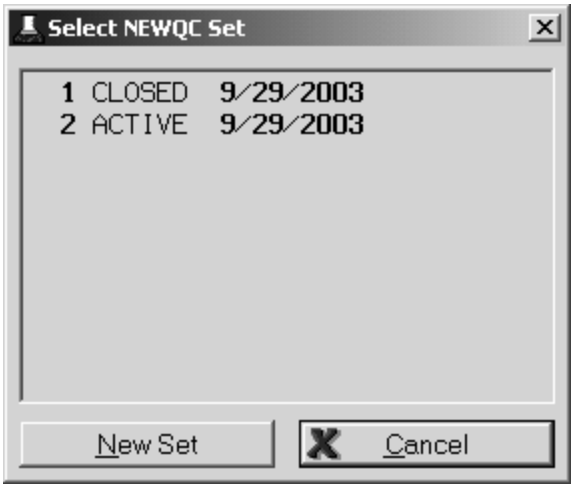
Select Test**: if you are doing parallel testing on a set of controls, or putting in a lot number you'll begin using at a later date.**

The two other Status levels, **Closed** and Archive, are not used in defining a New Lot. A lot should be set to Closed if you've finished that lot of controls and are activating a new one (i.e., when you've just finished parallel testing). You could do this yourself, but SchuyLab will do it for you automatically: whenever you have an Active control lot, and a new Active lot is defined, SchuyLab automatically closes the first Active lot and assigns the current date as the End Date. Because SchuyLab will NOT delete any of the QC you've entered, you can end up with a long list of closed QC lots. If you set the status from **Closed** to **Archive,** SchuyLab will remove these from many of the QC lists. Like many other lists in SchuyLab, you can always go back and look at those Archived lots should you need to.

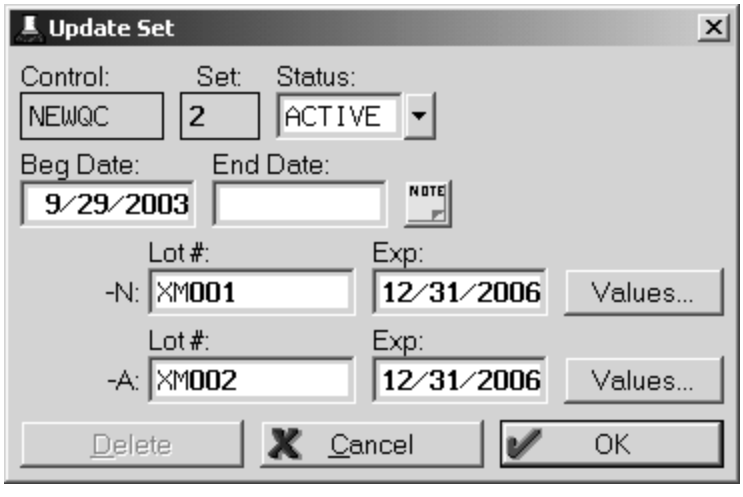
4. The Beginning Date automatically defaults to the current date. You can override the date, if necessary. Leave the End Date blank; that doesn't get entered until the next lot is activated.
5. You ***must*** enter the Lot Numbers and the Expiration Dates for all levels.
6. Select **OK.** SchuyLab returns to the Quality Control Setup menu screen.

Select Set

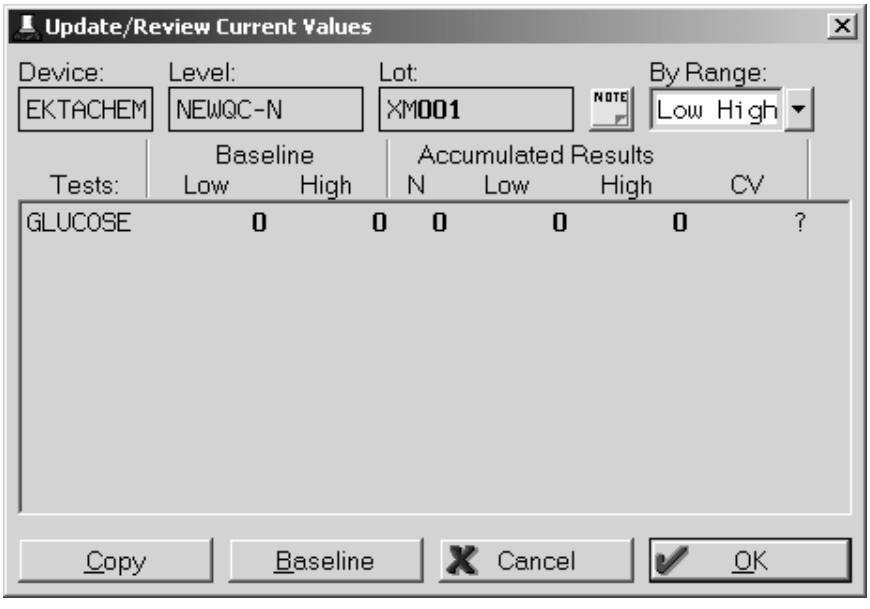
1. Select **Set.** SchuyLab displays the Select Control box.
2. Select **List.** SchuyLab displays the Control? box. Select the control from the list. SchuyLab displays the Select [Control Name] Set box.



3. Select the control set. (For a new control, such as described here, there'll only be one set.) SchuyLab displays the Update Set box.



4. This is your last chance to correct the lot numbers, expiration dates, status etc., for this lot. The main purpose, however, is to set the values for the ranges of each level of the control.
5. Select the **Values** button for one of the control levels listed. SchuyLab displays the Update/Review Current Values box.



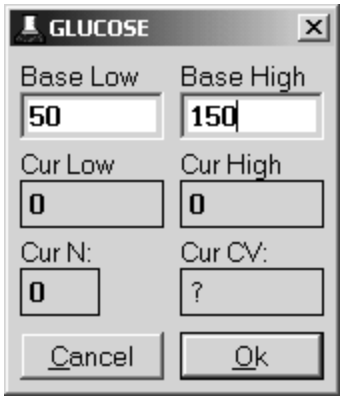
Complete the fields as follows:

By Range selects the format of your control data:

Select Low High**:**	**if your Control value sheet expresses your controls as a range of values (e.g., "12-32").**
Select Mean SD**:**	**if your Control value sheet expresses the information as a mean and a Standard Deviation (e.g., "22, SD 5").**
Select Mean +/-**:**	**if your Control value sheet expresses the data as a mean and a plus-or-minus of that mean (e.g., "22 ± 10").**

SchuyLab automatically reformats the screen to accommodate your selection.

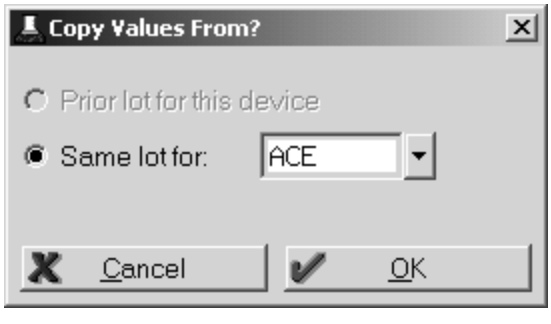
Select one of the test names. SchuyLab displays the [Test Code] box.



Enter the data for that test's control range in the pop-up box. Select the **Ok** button in that pop-up box.
Select the next test name. Enter the data for that test. Select **Ok.**
Continue until you have entered data on all of the tests.

Baseline — **Select this button to copy your Accumulated results into Current values. This option permits you to begin a new lot of controls using the manufacturer's values, establish the norms specific to your reagents and instrumentation during parallel testing, then copy the site-specific accumulated values into your Current file, replacing the manufacturer's figures with your own. Baseline data is typically revised when a lot is changed from Test to Active status.**

Copy — **When updating the QC values for a set of controls, you can copy the values from either the prior set of that control (assuming there is one) or the current level of another device of the same type (assuming there is one). If neither option is available, the copy button will be grayed out.**



When done, select **OK.**

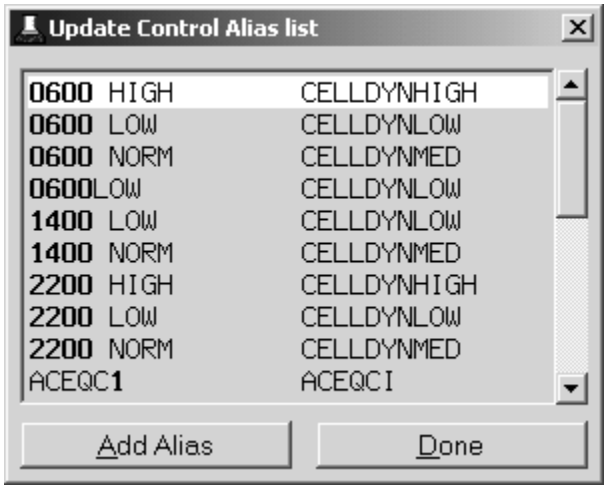
6. Select the **Values** button for the next level. Proceed as above.

7. When you have set values for all levels, select **OK** to return to the Quality Control Setup menu screen.

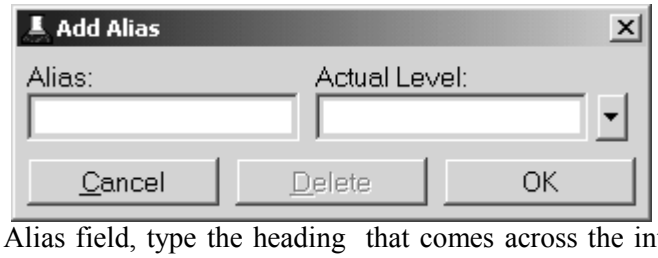
Select Alias

Some instruments transmit control values across an interface with a heading that is both specific and inalterable. The Alias function exists to establish a one-to-one relationship between the ***instrument's*** name for the control and ***your*** name for it. (Unlike using the interface names, this prevents confusion when different instruments have different headings for the same control. And who wants to call a control "D38X9311" anyway?!)

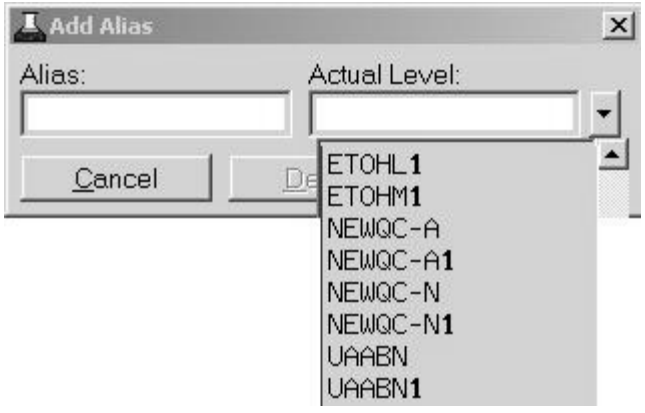
1. Select **Alias.** SchuyLab displays the Update Control Alias List box, listing all the aliases currently defined in QC Setup.



2. Select Add Alias. SchuyLab displays the Add Alias box.



3. In the Alias field, type the heading that comes across the interface. In the Actual Level scroll box, select the name and level of the control.



Note: Each control/level on the Actual Level list is shown twice: once as you've defined it (control name + level name), and again with a number appended. The entry ***without*** the number is the generic QC file for that control, with no other restrictions; the entry ***with*** the number is the specific QC file for that control set. (The first set of that control, which we've just defined, is set #1; thus, in the example, we see NEWQC-A**1** for that specific subset, abnormal level, and NEWQC-A for the full control of the same level.) If your lab uses standard control procedure, with only a single lot number in use at a time, select the entry ***without*** the number appended. If you have several specific lots accepting QC results (e.g., you're doing parallel testing, with an Active ***and*** a Test lot), or if your lab keeps only lot-specific QC results, select the entry ***with*** the number appended.

4. Select **OK** to return to the Update Control Alias list box.
5. Repeat the above steps for all levels of each control. You can also establish multiple aliases for a given control level (in case you have several means of inputting those QC values).
6. When you've finished, select **Done.** SchuyLab returns to the Quality Control Setup menu screen.

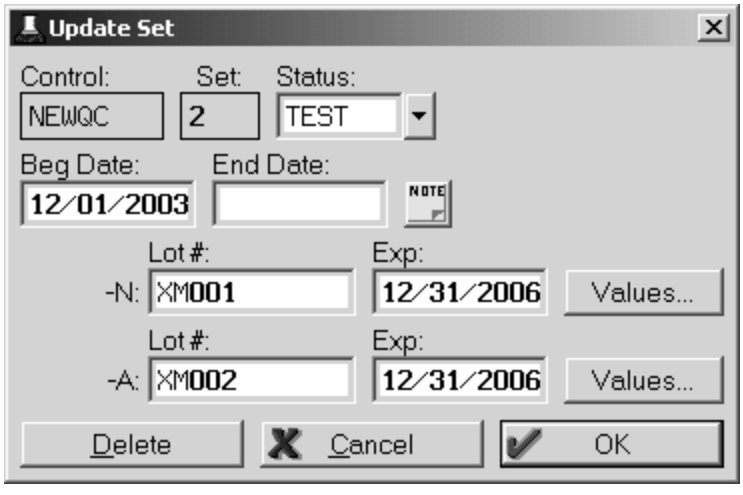
Adding a New Lot Number to a Control

Once the SchuyLab system has been accepting QC results for a while, the time will come when your original lot expires, and a new lot will have to be defined. The procedures are exactly the same as described above (except of course that you don't have to re-define the control itself, or connect it to a device). Defining a new lot begins, appropriately enough, with the New Lot icon.

Select New Lot

1. Select **New Lot.** SchuyLab displays the Select Control Box.

2. Select **List.** SchuyLab displays the Control? box. Select the appropriate control. SchuyLab displays the Define Set box.



Notice how the Set field automatically advances: if the previous set had been #1, this one will be #2.
In the Status scroll box, select the status of this particular control set. Select;

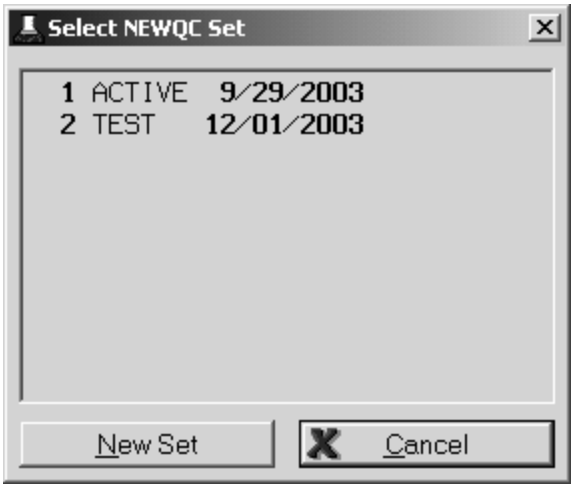
Active	**if you are immediately using this lot in production.**
Test	**if you are doing parallel testing on a set of controls, or entering a lot number you'll begin using at a later date.**

Note: If you already have an Active lot of the control, and you define another lot as Active, SchuyLab automatically closes the first Active lot and assigns the current date as its End Date.

3. The Beginning Date automatically defaults to the current date. You can override the date, if necessary.
4. You ***must*** enter the Lot Numbers and the Expiration Dates for all levels.
5. Select **OK.** SchuyLab returns you to the Quality Control Setup menu screen.

Select Set

1. Select **Set.** SchuyLab displays the Select Control box.
2. Select **List.** Select the control from the list.
3. SchuyLab displays the Select [Control Name] Set box.



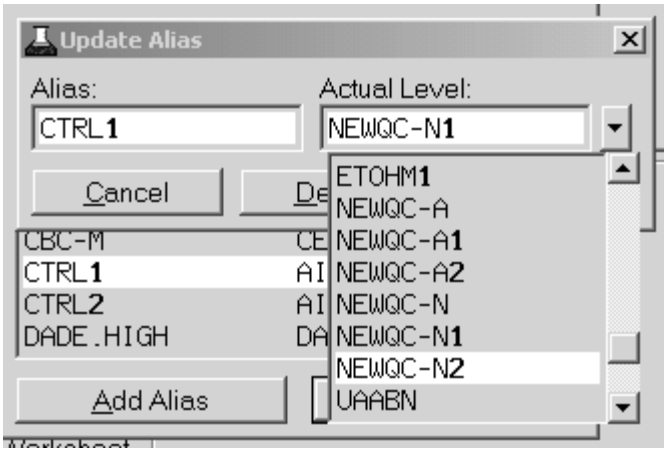
There will be at least two control sets listed: all the previous lots, plus the new lot you've just defined. Select the new lot from the list. SchuyLab displays the Update Set box.

4. Select the **Values** button for one of the control levels listed. SchuyLab displays the Update/Review Current Values box. Enter the ranges for that level, following the same instructions as given in QC Setup, above. Select **OK.**
5. Select the **Values** button for the next level. Proceed as above.
6. When you have set values for all levels, select **OK** to return to the Quality Control Setup menu screen.

Select Alias

When defining a new lot for a currently existing control, it is only necessary to update the Alias if (a) the previous lot had an alias, and (b) that alias was specific to the previous lot. If this particular control doesn't use an alias (because QC results aren't accepted through an online interface), or if you store QC results in the non-specific file for that control (that is, the control name ***without*** a number appended), skip this section.

1. Select **Alias.** SchuyLab displays the Update Control Alias List box.
2. Select the alias for the previous lot from the list. SchuyLab displays the Update Alias box. The Alias field will contain the instrument's name for that control level, and (if nothing has been changed on the device) should be left as is. In the Actual Level scroll box, pull down the list of control levels.



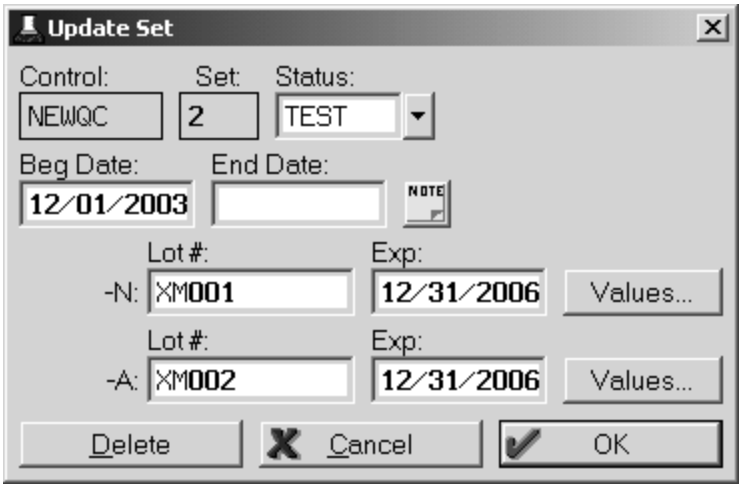
Only Active and Test control sets will be displayed in the Actual Level list. Select the name and level of the new control lot (in the example above, the old lot has a 1 appended, and the new lot will have a 2 appended; select the new lot). Select **OK** to return to the Quality Control Setup menu screen.

Parallel Testing

Parallel Testing a New Lot Number of a Control already in SchuyLab
Parallel testing is a special case of introducing a new lot of a control. It allows you to accumulate data for the new lot, while still accepting QC results for the current lot. The procedure is exactly the same as Adding a New Lot Number, described above.

Select New Lot

1. Select **New Lot.** SchuyLab displays the Select Control box.
2. Select **List.** SchuyLab displays the Control? box. Select the appropriate control. SchuyLab displays the Define Set box.



3. In the Status scroll box, select **Test** to do parallel testing on a set of controls.
4. The Beginning Date automatically defaults to the current date. You can override the date, if necessary.
5. You ***must*** enter the Lot Numbers and the Expiration Dates for all levels. Select **OK**. SchuyLab returns to the Quality Control Setup menu screen.

Select Set

1. Select **Set.** SchuyLab displays the Select Control box.
2. Select **List.** Select the control from the list.
3. SchuyLab displays the Select [Control Name] Set box. Select the control set. SchuyLab displays the Update Set box. There will be at least two control sets listed: all the previous lots, plus the new lot you've just defined. Select the new lot from the list. SchuyLab displays the Update Set box.
4. Select the **Values** button for one of the control levels listed. SchuyLab displays the Update/Review Current Values box. Enter the ranges for that level, following the same instructions as given in QC Setup above. Select **OK.**
5. Select the **Values** button for the next level. Proceed as above.
6. When you have set values for all levels, select **OK** to return to the Quality Control Setup menu screen.
7.

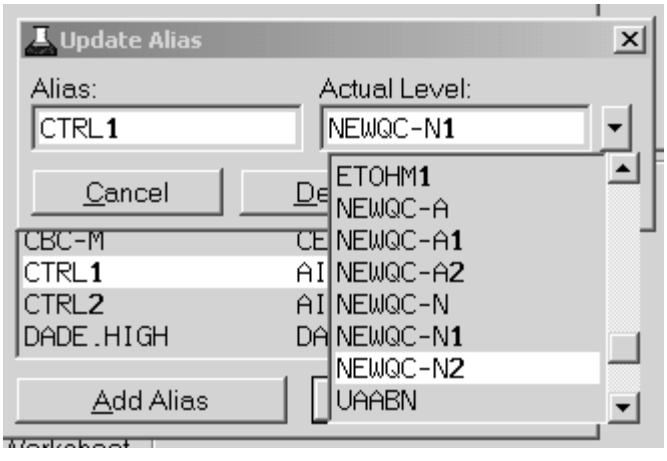
Select Alias

Parallel testing is where the use of aliases becomes particularly important. By defining two aliases, one for the currently Active control set and another for the Test control set, you can easily run the parallel tests without having to worry about misfiling results.

1. Select **Alias.** SchuyLab displays the Update Control Alias List box.
2. Select **Add Alias.** SchuyLab displays the Add Alias box.

1. In the Alias field, type either
    a. the name you wish your techs to give the control you're parallel testing when they put it on the analyzer, or
    b. the name you know the analyzer will send it across as, irrespective of whatever your techs call it.

In the Actual Level scroll box, select the name and level of the control.



Note: As noted above, each control/level on the Actual Level list is shown several times: once as defined, and with several control/level subsets with an integer appended. (The first set of the control has a 1 appended, the second set has a 2, and so on.) Only lots that are defined as Active or Test status (not Closed) will be listed. These subsets exist so that the Alias information can interact with the control/level/lot number status.

Let's say that you are working with a rather smart analyzer. You tell this analyzer that the first two cups of a run are the working controls (which it may call "CONTROL 1" and "CONTROL 2", and which you've aliased to your SchuyLab controls "NEWQC-N1" and "NEWQC-A1"). But a new set of controls came in yesterday, and you want to begin parallel testing them today. So you tell the analyzer

that in the next two cups you have put “Test N” and “Test A”. Cannily, you go to your QC Alias function, and assign the alias “Test N” to Actual Level “NEWQC-N2”, and “Test A” to the Actual Level “NEWQC-A2”. Now these subsets of the control automatically accumulate all the accepted QC data which comes across the interface under those names.

Some analyzers have designations that they automatically assign to QC. What if there is such a designation set aside for a lot number being parallel tested? The first answer is that, if such a designation exists, you ought to use it. The second answer is that instruments which are sufficiently sophisticated to have made provision for parallel testing, generally let you input a name for your controls. The third answer (I warned you that QC is a complex topic!) is that you can always create a patient called “TestDude, LevelI”, order the appropriate tests on the patient, and when the results get to the interface, reassign them as the alias “Test L”. They will then be sorted into the correct files.

Select Set again

Once you’ve got enough QC results from the testing phase to be considered statistically significant, you can replace the lot manufacturer’s ranges with the mean and standard deviations you’ve compiled through parallel testing. This is done through **Set.**

1. Select **Set.** SchuyLab displays the Select Control box.
2. Select **List.** Select the control from the list.
3. SchuyLab displays the Select [Control Name] Set box. Select the control set. SchuyLab displays the Update Set box. There will be at least two control sets listed: all the previous lots, plus the test lot. Select the test lot from the list. SchuyLab displays the Update Set box.
4. Select the **Values** button for one of the control levels listed. SchuyLab displays the Update/Review Current Values box. Select **Baseline.** This copies the statistical data from the right side of the box to the left side. Select **OK.**
5. Select the **Values** button for the next level. Proceed as above.
6. When you have set values for all levels, change the Status of the set from Test to Active and select **OK** to return to the Quality Control Setup menu screen.

How to Use QC

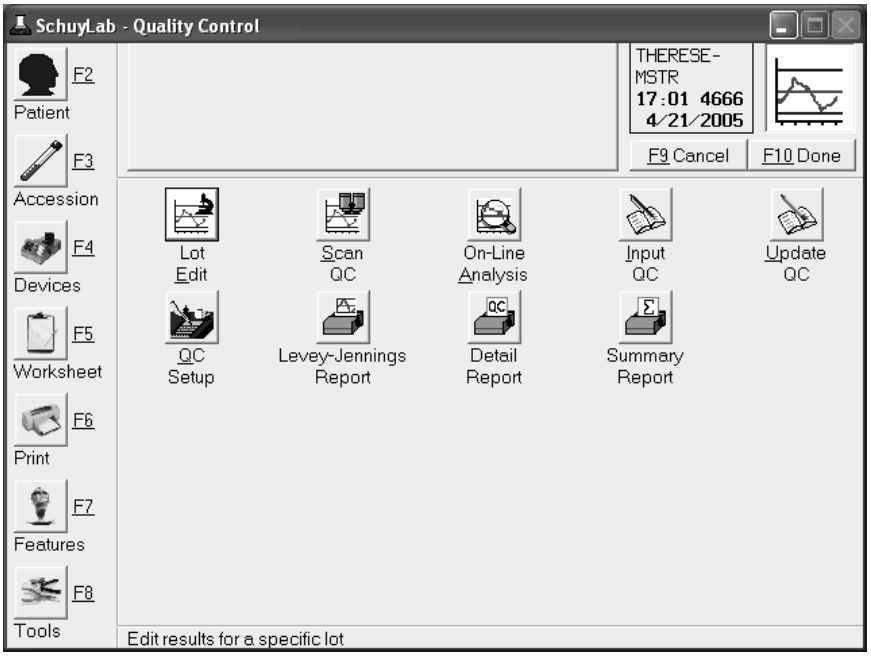
By and large, you can treat your QC values as you do your patient results. Controls that are run on instruments on line are accepted into QC files in the same manner that a patient result is sorted into the patient’s files. Sets of results that are entered by worksheet, can have the controls entered at the same time. Controls can also be entered manually. In short, for each method of entering patient results, there’s an analogous method for entering QC results.

Fine, you say to yourself, but I don't want to know how QC is like patient data. I turned to this heading to learn how QC *differs* from patient data.

Fair enough. Let's do a quick overview of the QC module in SchuyLab:

Select **F7. Features.**
Select **QC.**

SchuyLab displays the Quality Control menu screen.



The icons visible in the Quality Control menu screen can be classed according to four separate function categories:

Setup

QC Setup

This is where the controls, lots, and ranges are defined for QC. It's discussed more completely in Sec. 8, Managerial Functions.

Input and Review

Lot Edit, **On-Line Analysis,**

Input QC, **Scan QC** **Update QC**

Input QC is used for manual entry of QC values; it works like the Enter Results icon in the Patient Processing screen. Lot Edit, On-Line Analysis and Scan QC permits the QC data to be reviewed (Lot Edit through a spreadsheet of numbers, On-Line Analysis through Levey-Jennings graphs), and individual data points to be annotated, altered, or excluded from statistics. Update QC allows you to alter previous results of QC.

Print QC Reports

Levey-Jennings, **Detail Report,** **Summary**

These icons print the QC data in report form: Levey-Jennings Report does so graphically, Detail Report numerically and Summary prints the Accumulated Baseline Values. In other words, what On-Line Analysis and Lot Edit display on the screen, Levey-Jennings Report and Detail Report print onto paper.

QC on an Online Interface

When QC data come across an instrument interface to appear on the **F4. Devices** screen, it resembles a patient specimen. The name of the control, as defined in SchuyLab, occupies the nameplate area, and the name the instrument uses for that particular control level occupies one of the entry fields. When a sample labeled as a control is sent across the interface, whether or not SchuyLab can identify which control and level is indicated, the Control button in the upper right hand corner of the screen is automatically selected (turns dark grey).

To accept QC via an online interface

1. Select **F4. Devices.**
2. Select a device icon. SchuyLab displays the oldest set of data available from that instrument.
3. If the values displayed are for a control:

    - If the QC results are valid, select **Accept.** SchuyLab sorts these results into their appropriate QC files.

    - If the QC results are not valid, select **Delete.** SchuyLab deletes that set of values and displays the next set.

- If the QC set contains some results you wish to retain, and some you do not, use the ***right*** mouse button to toggle the checkmarks off or on. Select **Accept.** Those tests with checkmarks will be entered into their appropriate QC files. (The tests without checkmarks will be deleted.)

(This matches how individual patient results are accepted, or not, via the online interface. For a more detailed discussion, see Sec. 3, Daily Operations.)

Note: If you accept QC values flagged as more than 2, or more than 3, standard deviations (">2" or ">3"), those values should be annotated. This can be done at the online interface, using the ***left*** button of the mouse or it can be done using the Lot Edit icon in the Quality Control menu screen.

Troubleshooting Online QC

Occasionally you will have a control sample visible, yet the nameplate will be blank, and SchuyLab won't let you accept the results. A lot of the results are flagged as "High" or "Low", too, though the values themselves are right on the mean. Yet you know you ran the correct control. What's happened? What does it mean?

What has happened is that the instrument sent the control values (perfectly good control values, too) across the interface with a name attached that SchuyLab didn't recognize. It's as if you taught your dog to fetch your slippers ... then gave him the command in German. He'd just sit there, staring at you with big brown eyes, waiting for you to make sense. (You could wait a long time for your slippers to arrive.)

SchuyLab knows that it has been sent a set of results. The instrument may even have "told" SchuyLab that this data sample represented a control. But SchuyLab looked in its QC file and didn't find anything with that exact name. So it compares the test results to the *patient* ranges (which is why you get so many flags), and sits there, waiting for you to tell it how to make sense of the information.

The most likely cause of this problem is

The **Alias** box in **QC Setup** (which translates the control name transmitted by the instrument into the control name you've defined in SchuyLab) does not have the control name actually transmitted by the instrument.

There are a couple of aspects to this problem. Some instruments allow the operator to input a QC name. ***Sometimes,*** the name the operator typed is the same name the instrument actually uses as a label when the data is sent across an interface. Sometimes, it isn't (even though the name the operator input appears in the screen display of the instrument itself!). The easy answer is this:

- If the instrument ***does*** transmit the control name the operator puts in, then stick a post-it note to the instrument directing the techs to use the names you've put in SchuyLab.

- If the instrument ***does not*** transmit the control name the operator puts in, or if it doesn't allow you the option of assigning your controls a name, then copy down the exact text that appears in the entry field on the interface screen (include capitalization, blank spaces, and punctuation marks). Go to the Add Alias box [Select **F7. Features;** select **QC;** select **QC Setup;** select **Alias;** and either then select the line that ***should*** have the name of that control, or select **Add Alias** to add it] and retype in the text you've just copied.

After you have made your corrections, check back in the Online Interface screen. If you have corrected the problem, the nameplate area will contain the QC ID.

Temporary fix

If you know the SchuyLab name for a level of a control, but are not authorized to alter QC, you can retype the correct name in the entry field on the interface screen itself (in place of the incorrect name). After you have corrected the name, select Reassign. If your 'fix' is correct, the QC control name will appear in the nameplate area. Review the data, and accept or delete it, as discussed above. Occasionally the instrument will send the correct QC name to the wrong entry field. Try typing the name in a different field (usually the first), then Reassign the QC specimen and review it, as above.

Lot Edit

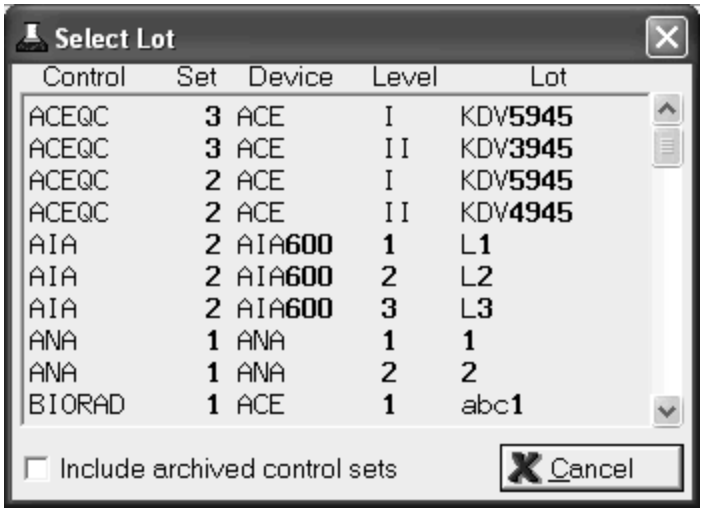
Often, you will want to review a series of QC results, modifying or annotating individual values. This can be done when accepting the QC results via the online interface, as described above, or it can be done through the On-Line Analysis function -- but these are more convenient for editing one or two values. For editing a series of values, the Lot Edit function is best. It displays the actual numeric data of your controls, in columns by test and date.

Select **F7. Features.**
Select **QC**.

SchuyLab displays the Quality Control menu screen.

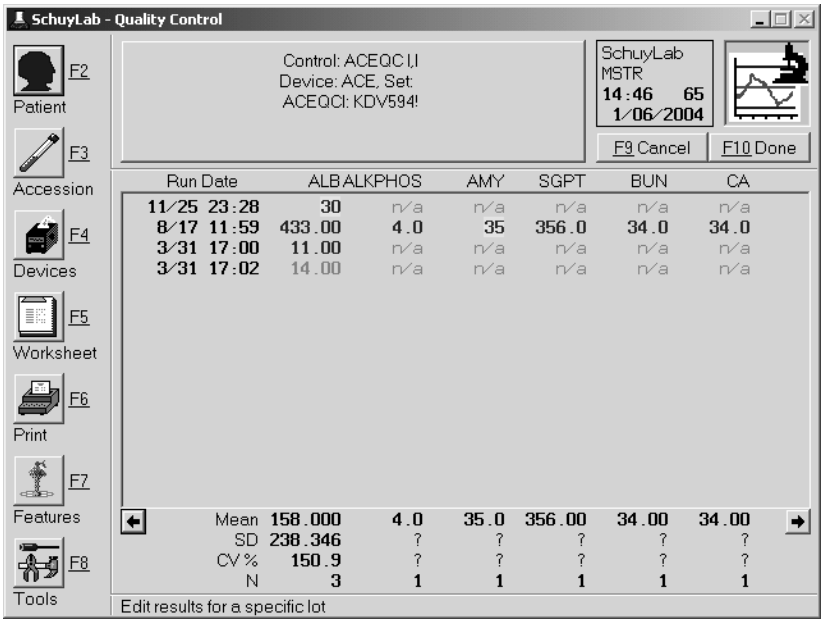
To annotate or alter a QC value for a given lot

1. Select **Lot Edit.** SchuyLab displays the Select Lot box.


Select Lot
Control Set Device Level Lot
ACEQC 3 ACE I KDV5945
ACEQC 3 ACE II KDV3945
ACEQC 2 ACE I KDV5945
ACEQC 2 ACE II KDV4945
AIA 2 AIA600 1 L1
AIA 2 AIA600 2 L2
AIA 2 AIA600 3 L3
ANA 1 ANA 1 1
ANA 1 ANA 2 2
BIORAD 1 ACE 1 abc1
Include archived control sets
Cancel

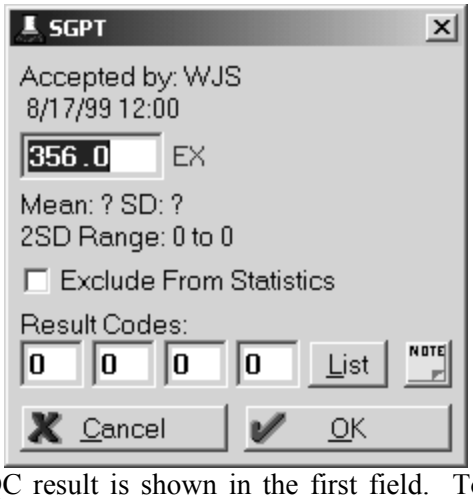
If you wish to see all the QC lots, including those you have set to Archive, then mark the box in the left hand corner.

2. Select one of the lots in the list box. SchuyLab displays the results for that specific lot and level, in a 'spreadsheet' format.


SchuyLab - Quality Control
F2 Patient
F3 Accession
F4 Devices
F5 Worksheet
F6 Print
F7 Features
F8 Tools
Control: ACEQC I,I
Device: ACE, Set:
ACEQCI: KDV594!
SchuyLab
MSTR
14:46 65
1/06/2004
F9 Cancel
F10 Done
Run Date ALB ALKPHOS AMY SGPT BUN CA
11/25 23:28 30 n/a n/a n/a n/a n/a
8/17 11:59 433.00 4.0 35 356.0 34.0 34.0
3/31 17:00 11.00 n/a n/a n/a n/a n/a
3/31 17:02 14.00 n/a n/a n/a n/a n/a
Mean 158.000 4.0 35.0 356.00 34.00 34.00
SD 238.346 ? ? ? ? ?
CV% 150.9 ? ? ? ? ?
N 3 1 1 1 1 1
Edit results for a specific lot

3. The tests comprising the control are listed along the top; the dates and times for each control run are listed down the left side. Point and click at one of the QC results on the screen. (The *entire* row of QC data will light up when

you point to any position on it. That's okay; it does that to show you where you are. But SchuyLab knows which of the *individual* values in that row you are actually pointing the cursor at.)
SchuyLab displays the [Code name of the test] box.



- The QC result is shown in the first field. To alter that QC result, retype the entry.

- To exclude that result from the statistical analysis of your QC, check the box marked "Exclude from Statistics".

- To annotate the QC result, you can enter the numbers of Result Codes (up to four of them) in the fields labeled "Result Codes" (these are also called Remark Codes). (These will be the Result Codes that have been reserved for QC, and not those reserved for patient results. To see how the separate lists of Result Codes are defined, see Sec. 8, Managerial Functions.) Or, select the note icon to add a free text notation to the QC value.

- If you check the Exclude from Statistics checkbox on a QC result, it will appear 'grayed out' on the spreadsheet. The statistics at the bottom of the screen ("N", or number of values; mean, standard deviation, and "%CV", or coefficient of variance) will shift accordingly.

- If you add a Note or a Result Code to a QC result, the background behind the annotated figure will turn yellow.

4. Select **OK.** SchuyLab returns you to the Lot Edit screen.
5. Select another value. Proceed as above.
6. When you have finished correcting and annotating your QC values, select **F10. Done.** SchuyLab returns you to the Quality Control menu.

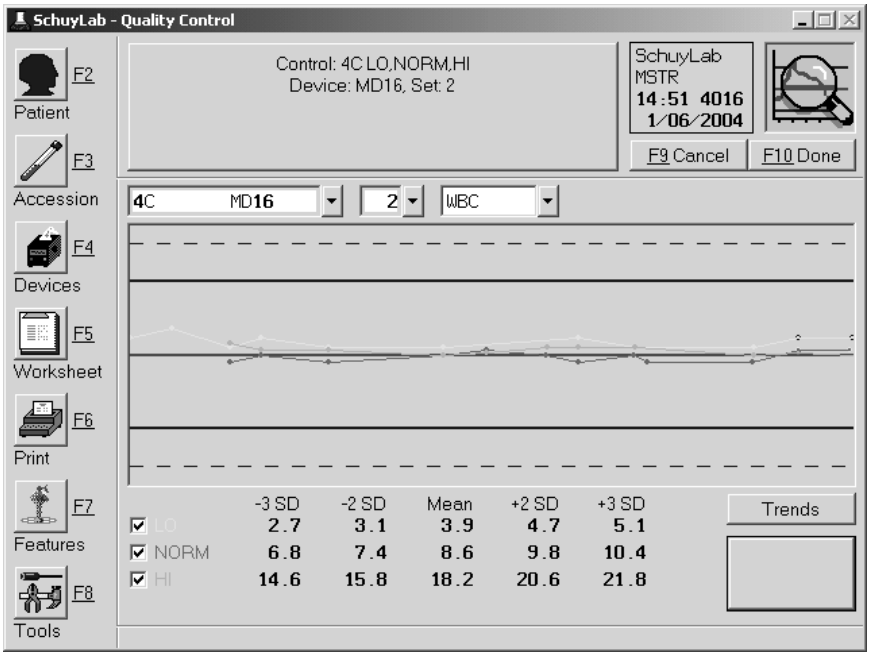
Online Analysis

When you want a comprehensive view of how your QC has been running on a specific test or set of tests, this is the option to select. Online Analysis displays a Levey-Jennings type graph of all the levels of your control at the same time. You can quickly flip through a series of tests, glancing at the QC on each of them, or you can minutely examine one portion of the graph on one bothersome test, obtaining specific data on the individual data points, or zooming in to expand a cluster of points.

Select **F7. Features**.
Select **QC**.
SchuyLab displays the **Quality Control** menu screen.

To display the control levels for a specific test

1. Select **On-Line Analysis.** SchuyLab displays the Levey-Jennings chart screen.



2. In the first scroll box, select the instrument-control pair you wish to observe (in this case, the CBC controls for the CellDyn 1600).
3. The second scroll box contains all of the sets of that control pair which SchuyLab has in its memory. The system will automatically default to your

active set of controls. For instance, say that you had run four different lot numbers of Monitrol in Chemistry, since you began using SchuyLab. They might be numbered in the system as:

1 (a Closed set)
2 (a Closed set)
3 (your Active set)
4 (a new set, undergoing parallel testing and in Test status)

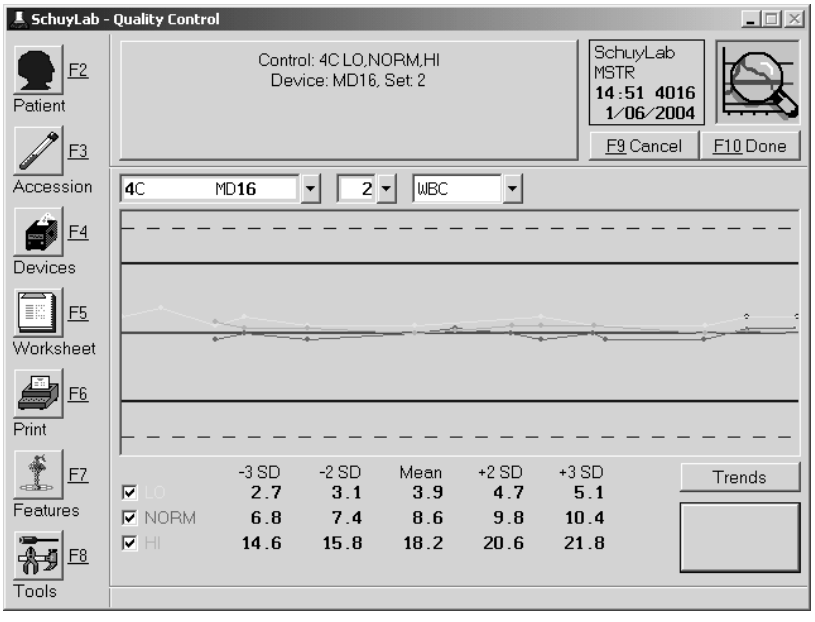
While all of these sets are available for your examination in the Levey-Jennings graph, the system will default to set #3, which is your Active set of controls. If you wish to examine a set other that the active set, select the set you wish to observe.

4. The third scroll box contains a list of tests which are performed on the instrument-control pair you have selected. Select a test from this list.
5. At the bottom of the screen are up to four checkboxes (depending on the number of levels your control has). Next to some of these boxes are labels for the levels of your control, and the mean and 2SD range for each level. Checking the box next to a level will display the controls for that level on the Levey-Jennings graph. You may examine all the control levels for a given test at the same time, or, by toggling the checkboxes on and off look at the levels one at a time.

    - On the graph, the solid green line represents the mean, the solid blue lines the ± 2SD limits, and the broken blue lines the ± 3SD limits. The levels of the control are displayed in yellow, pink, light blue, and (should there be a fourth control) brown.

    - To calculate the trending characteristics of a level, select the **Trend** button. A dashed line of the same color as the control appears, showing the average slope of the graph. (It's best to do trends one level at a time, or the screen gets awfully crowded. Pretty, but not particularly helpful.)

    - To display the numeric value of a particular point on the graph, point and click at a dot. The numeric value for that point, and the time and date it was run, appears in the box at the lower-right section of the screen (near the **Trends** button). If you aren't exactly on a dot, SchuyLab will select the nearest point.



- Once you've chosen a specific point on the graph, and its values are displayed on the lower-right box, you can edit or annotate that point, or exclude it from your statistics. Just select the box where the values are displayed. SchuyLab displays a pop-up box for that test, just as in Lot Edit. And, just as in Lot Edit, you can add notes or Result Codes, change the result value, or exclude it from the database.

- To expand a section of the graph if the data points are too close together to resolve individually, point the cursor at the middle of that area and click the ***middle*** button on the mouse. SchuyLab will "zoom" you in to that section of the graph. To "zoom out" again, click the ***right*** button on the mouse.

- To flip through all the tests on an instrument-control set, point the cursor at the test scroll box at the top of the screen and click the ***right*** button on your mouse. Each click will advance the scroll box to the next test. The middle button will scroll backwards test by test.

6. Select **F10. Done** to exit this screen. SchuyLab returns you to the Quality Control menu screen

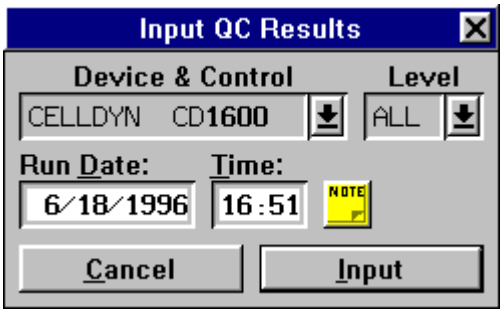
Input QC

Most of your QC will be entered into SchuyLab by worksheet or online. There will be instances, however, when you need to enter a set of QC values manually as a separate function. This is done in a manner similar to the manual entry of patient results, but applies solely to Quality Control data.

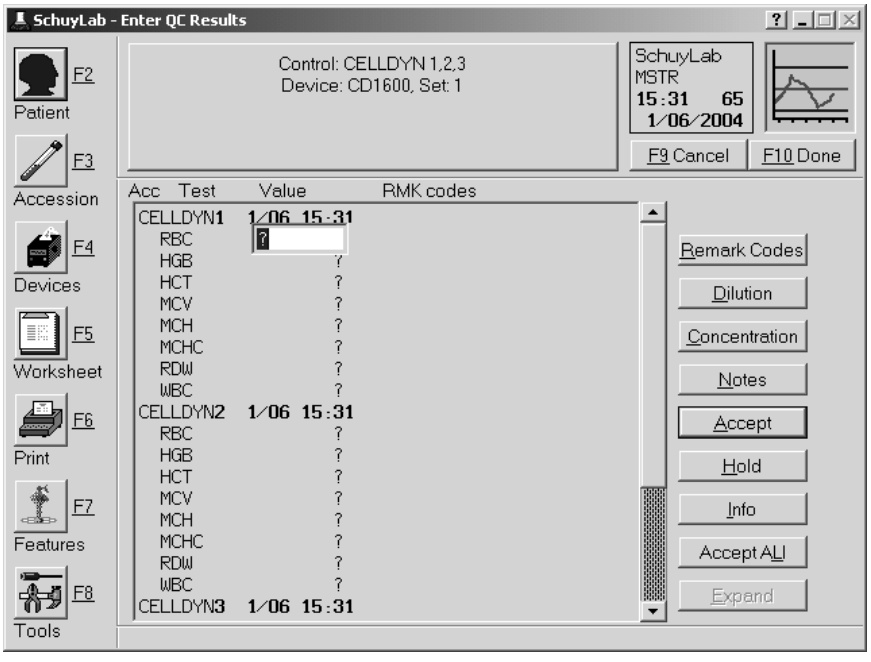
Select **F7. Features**.
Select **QC**.
SchuyLab displays the Quality Control menu screen.

To input a specific set of QC values

1. Select **Input QC.** SchuyLab displays the Input QC Results box.



2. From the Device & Control scroll box, select the device-control pair for the data you wish to enter.
3. In the Level scroll box, select the level of control you wish to input. The default is "ALL", meaning all levels defined for that control; you can also select an individual level.
4. Enter the date and time the QC was performed in the fields labeled Run Date: and Time:. You may also add a note to this QC run (for instance, the technologist who ran the QC).
5. Select **Input.** SchuyLab displays the Enter QC Results screen, containing the tests defined for this instrument-control pair. (It looks remarkably like the Enter Results screen for patient processing, doesn't it?)

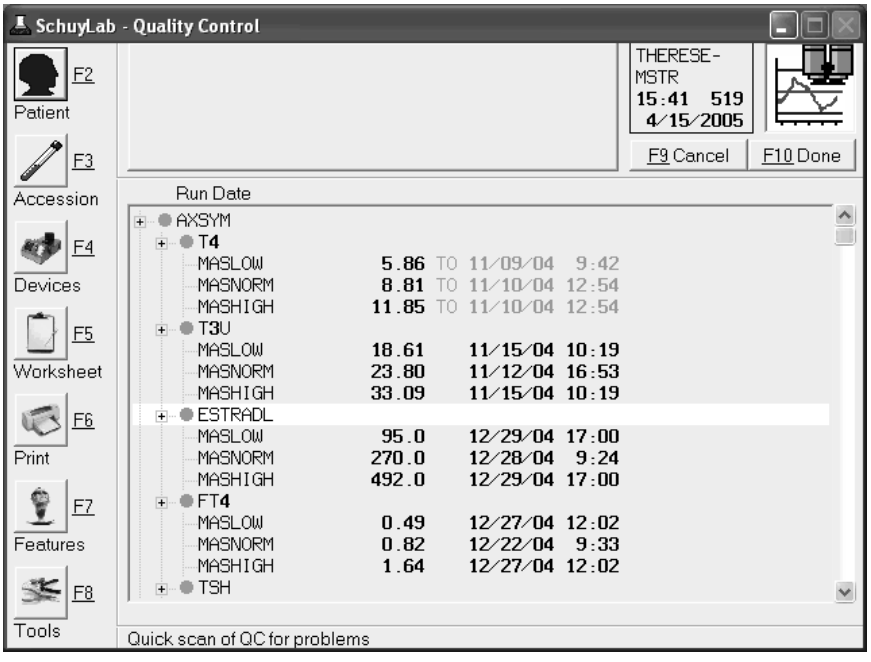


Point and click on one of those tests and enter the values. As you accept the values, SchuyLab will flag them as >2SD or >3SD. Values exceeding 2SD should be annotated. Select **Result Codes** to apply a predefined comment to the value, or select **Notes** to add a free-text entry.

6. When you've entered all QC results for that level of control, select **F10. Done.** SchuyLab returns you to the Quality Control menu.

Scan QC

Scan QC will show you the most recent run of each level of control on each of your instruments. Each instrument is listed and has a colored indicator light next to it.

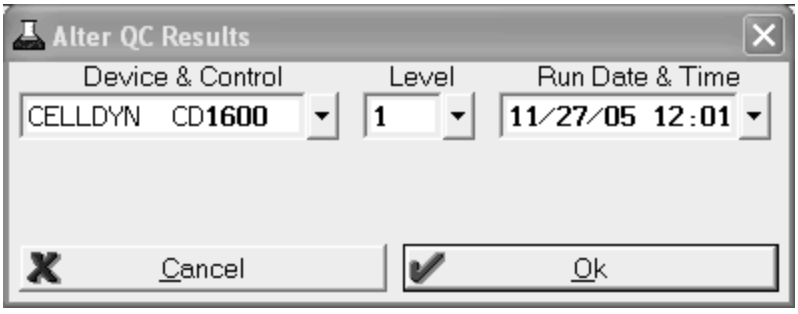


This light reflects the least favorable result of all the levels (notice the light next to the instruments name. In this case, the light is Orange). If you have fifty tests that you run on this instrument and all of them are in control, except one, which is >3SD, the instrument light would be red. Red is also used for expired controls. The orange light means that your QC has not been run within the Frequency time period you entered (if you entered a frequency). The control will also be marked "TO" (Timed Out) to indicate the type of error (notice the T4 test). A yellow light indicates the control is out of limits by >2SD and a green light means things are good.

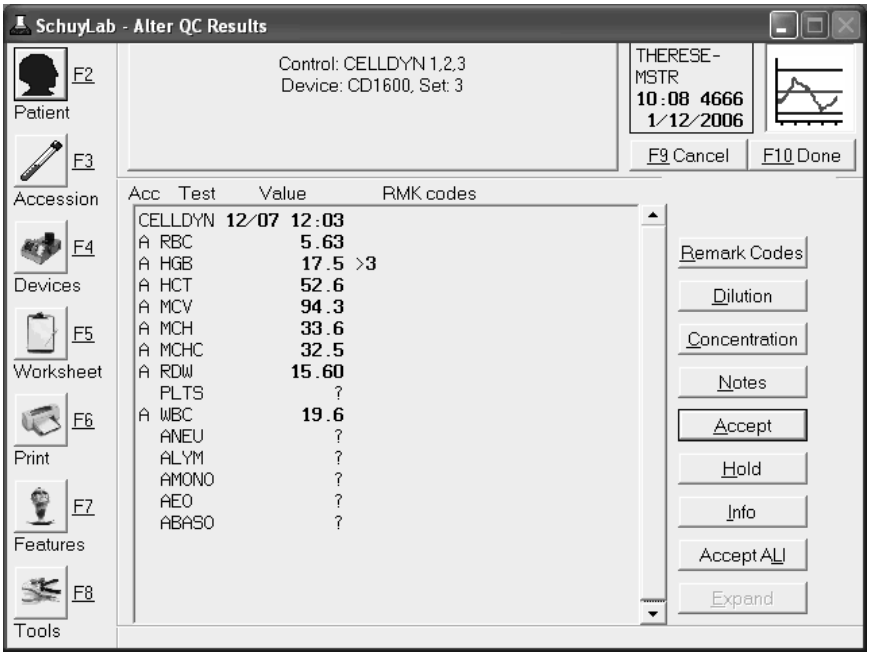
Update QC

Update Qc or Lot Edit? You can alter results; attach notes or remarks in either spot. So what's the difference? In Lot Edit, you choose the QC you're interested in by scrolling thru a long list. In Update QC it is a little easier to find the lot you need.

1. Select **Update QC.** SchuyLab displays an Alter QC Results box.



2. In the first scroll box, select the instrument-control pair you wish to alter (in this case, the CBC controls for the CellDyn 1600).
3. The second scroll box contains all of the levels for this control. You choose which level you wish to alter (in this case, we are looking at level 1).
4. The third scroll box contains a list of run dates and times (in case you run more than one QC a day) for the instrument-control pair you have selected. Select a run date and time from this list. SchuyLab displays the Alter QC Results screen, containing the tests defined for this instrument-control pair. (It looks remarkably like the Enter Results screen for patient processing, doesn't it?)



Point and click on the result you want to alter and enter the new value. As you accept the value, SchuyLab will flag them as >2SD or >3SD if necessary. Values exceeding 2SD should be annotated. Select **Result Codes**

to apply a predefined comment to the value, or select **Notes** to add a free-text entry.

5. When you've altered all QC results for that level of control, select **F10. Done.** SchuyLab returns you to the Quality Control menu.

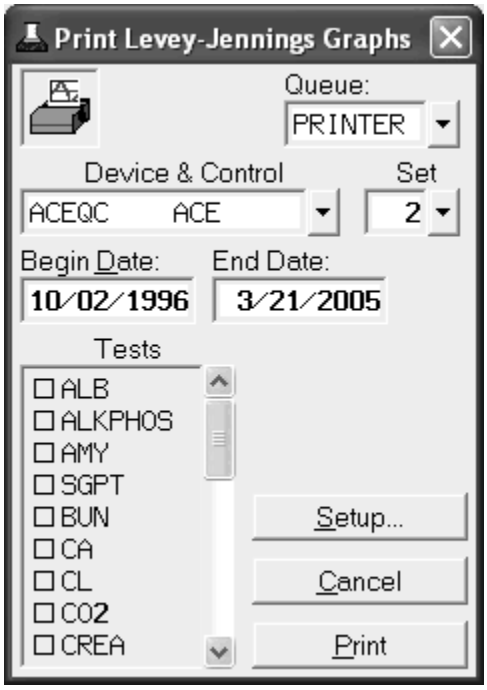
Levey-Jennings Report

This option allows you to print out a graph such as the one you viewed in On-Line Analysis.

Select **F7. Features**.
Select **QC**.
SchuyLab displays the Quality Control menu screen.

To print a Levey-Jennings graph

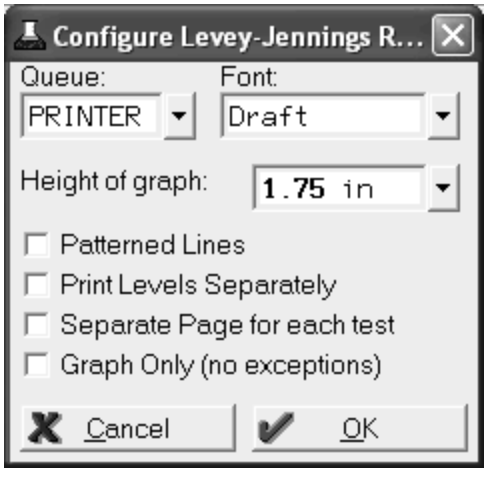
1. Select **Levey-Jennings Report.** SchuyLab displays the Print Levey-Jennings Graphs box.



2. From the Device & Control scroll box, select the device-control pair you wish to print.

3. From the Set scroll box, select the control's set number you wish to print. (The currently Active set is shown by default.)
4. Input the date range the report is to cover.
5. Select the test or tests to be printed. (If no tests are highlighted, nothing will print! This is the most common mistake made when printing this report.)

   Select **Setup**



6. There are four checkboxes. The first, "Patterned Lines", should be checked if you don't have a color printer. It directs the printer to use different line styles (solid, dotted, dashed, etc.) for the lines on the graph. Otherwise, the lines are printed in three different colors. Check Graph Only if you want only the graph to print (not the Run Date, Level or Value). (The remaining two checkboxes are not functional at this time: "Separate Levels" is always "off", and "Separate Pages" is always "on".)
7. To specify the queue and font for this QC report, SchuyLab displays the Configure Report box. In the scroll boxes, select the appropriate queue (that is, printer) and font. (If you have only one printer, the choice is easy. This option becomes more important when you grow to a networked system with several printers.)
8. By setting the Height of Graph, you are now able to print one to four graphs on the same sheet of paper. The taller the graph height, the fewer graphs on one page. Select **OK.** SchuyLab returns you to the Print Levey-Jennings Graphs box.
9. When you have configured the report to your satisfaction, select **Print** to print the report.

QC Detail Report

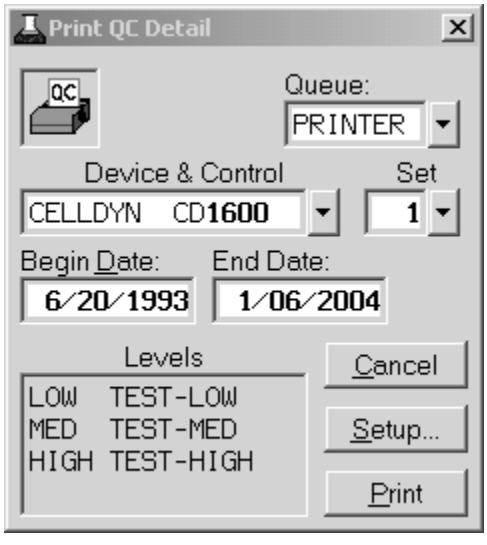
This option allows you to print out a set of numeric values, such as you viewed in Lot Edit, for all the tests of a particular level of a control.

Select **F7. Features**.
Select **QC**.

SchuyLab displays the Quality Control menu screen.

To print a set of QC values

1. Select **Detail Report.** SchuyLab displays the Print QC Detail box.



2. From the Device & Control scroll box, select the device-control pair you wish to print.
3. From the Set scroll box, select the control's set number you wish to print. (The currently Active set is shown by default.)
4. Input the date range the detail report is to cover.
5. In the box labeled "Levels:", select the level or levels of the control to be printed. (If none of the levels are selected, nothing will print! This is the most common mistake made when printing this report.)
6. To specify the queue and font for this QC report, select **Setup.** SchuyLab displays the Configure Report box. In the scroll boxes, select the appropriate queue (that is, printer) and font. (If you have only one printer, the choice is easy. This option becomes more important when you grow to a networked system with several printers.) Select **OK.** SchuyLab returns you to the Print QC Detail box.

When you have configured the report to your satisfaction, select **Print** to print the report.

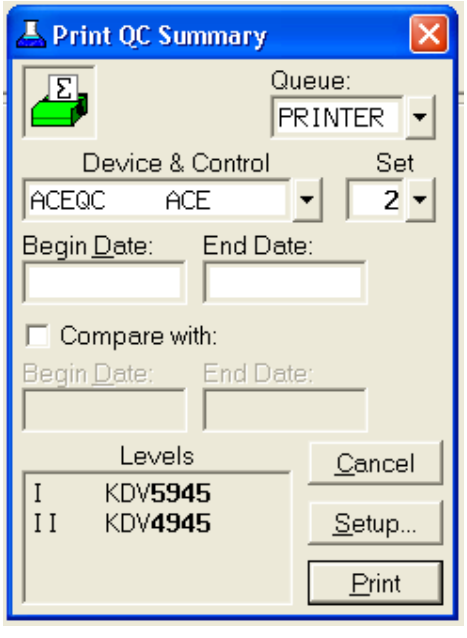
Summary Report

One of the things that many of our clients have asked us for was a way to print out the Accumulated Baseline Values for their QC Lots. SchuyLab now has a report that will do exactly that.

If we go to F7: Features, QC, we will see an icon, called:

Summary Report

This report prints out the Baseline values for the QC lots, in conjunction with an accumulated range. Typically, these ranges would be (1) the range for this month, and (2) the range for the entire lot. (The second range could be for the prior month, or whatever other interval you choose.)



Sec. 7 - Reports and Printing

Types of Reports

SchuyLab offers you many ways to print your necessary daily reports and forms. Following is a brief overview of those reports. We will get into more detail of setting these reports up and customizing them to fit your needs further in this section.

Patient Report
This is the most common form that you will be using. With this you will report the results of the patients test including any notes and comments

Cumulative Report
The Cumulative report will print the last 5 – 6 results for all the tests that have been run. It places them side by side, so at a glance the doctor can see if there are any trends or drastic changes.

Graphic Reports
Prints cumulative patient results on a graph, and then prints the data for individual results in columns below the graph. The most common graphic report is, of course, the PSA. But you can print out the graphic report for a patient's Glucose, or WBC. Any test that has the results stored in SchuyLab can have a graph of the results printed.

Reprint
CLIA requires that a laboratory be able to produce on demand *all* reports that were printed on a patient, including their intermediary forms. This means that you cannot just 'generate' a copy of the current finalized results of a patient: If a partial or preliminary report was sent to the ER, you have to be able to substantially replicate this preliminary report. In the past, this required the lab to store a huge number of documents in file boxes. SchuyLab remembers everything that it's sent to a printer, and can fulfill this CLIA requirement. The reports are kept electronically, in date order. You type in a date and SchuyLab shows all of the reports printed on that date – select the correct report, and you have essentially a copy of the exact report that printed out five or ten years ago. (If you've bought a new printer in the interim, there may be a change in font, but this is permissible under CLIA regulations.) The

security of the Reprint information, like any part of your database, depends on the integrity of your backup procedures.

Logs
Most of the logs in SchuyLab will print out, by specimen range, a log of patient names, tests and/or panels ordered, in some cases, the results of those tests or any "critical" values.

Demographics
Prints a report of all patients and their demographics (date of birth, doctor's name, &c). The report can be limited to a given date range or specimen range.

Draw List
Prints out by specimen range, the accessions that have been marked as "To be drawn" (This log is only used on SchuyLab systems with the "To be drawn" option activated).

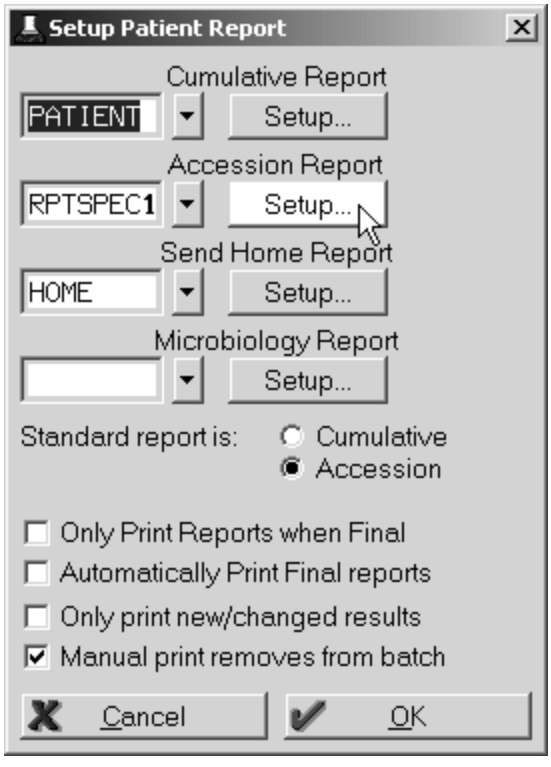
Statistics
These reports will print out a Test Tally (how many tests you have performed in a certain length of time) report or a Test Value report. A Test Value report can show you statistics on a specific group of people using a specific test (but more on that later).

Personalizing the Patient Report

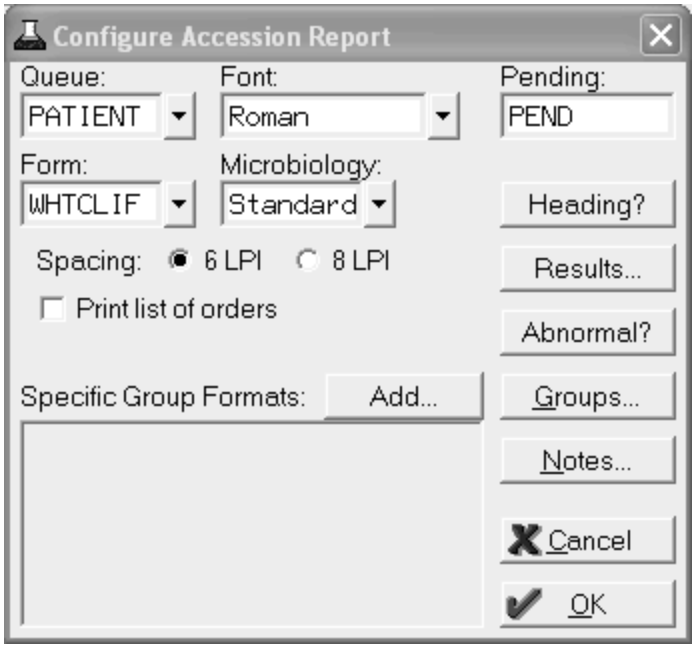
Although we have set up a result form for you, using your specifications, you may decide to change it by going to a preprinted form or just changing the information printed. First you will need to determine which form you are using as SchuyLab has three "templates" already for you to use.

Select **F8, Tools.**
Select **Setup.**
Select **Report Setup.**
Select **Patient Report.**

Select Setup under Accession Report.



In the box under the word "Form" is the name of the form you are using. It may be a variation of your lab's name (WHTCLIF) or if your report prints your lab name and information in the center of the page, it may be named CENTER.

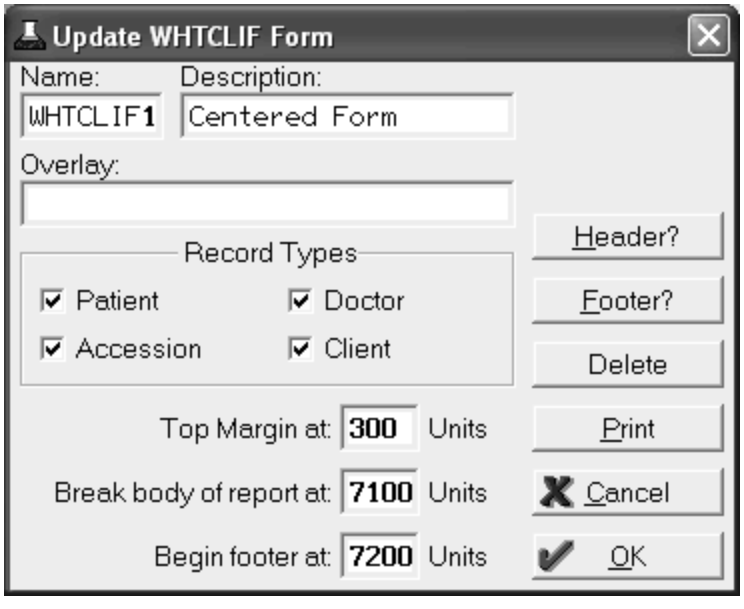


When you have the form name, you can cancel out of these screens until you are back in Report Setup.

Select **F8, Tools.**
Select **Setup.**
Select **Report Setup.**
Select **Forms**.

Select your form (in this case, we will be using WHTCLIF1).

This form is made of three main parts; Header, Body and Footer. The **Header** contains your lab's name, address, etc. and any other information concerning your lab (i.e. lab director's name). Also included in the header is the patient information (name, record #, Doctor's name, etc) and accession information (specimen #, draw date, print date, etc). The **Body** of your form contains the test name, the results and other information concerning the results. We will cover the body in more detail later in this section. The **Footer** can contain such information as a place for the tech to sign, the signature of who reviews the results, page number and an "End of Report" message.
Select your form and you see the Update [form name] box. We suggest that you rename this form. If, for what ever reason, this new form does not work, you will have the old form to fall back on (i.e. WHTCLIF is the original form, new form is WHTCLIF1). To rename, simply highlight the name and type in the new one. SchuyLab will save the old one and the new one – as long as they have different names.



Name **This is the name of your form in eight characters.**

Description **This is a description of your form. It can be the complete name of your lab (Whitecliffe Labs) or a description of the form (i.e. centered, pre-printed, etc.).**

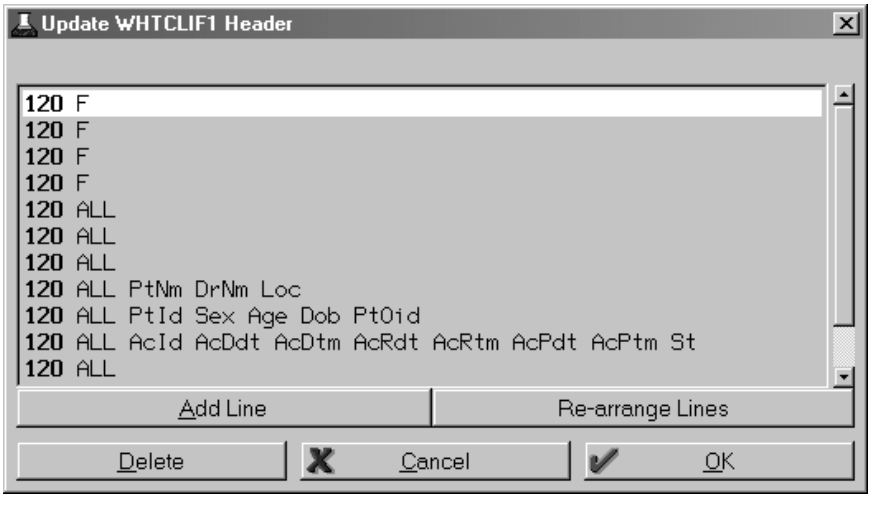
Overlay **If you have Autofaxing and plan to use a fax overlay, this is where you type in the path or place the fax is stored on your computer.**

Record Types **These four boxes should always be checked.**

Header	**This button takes you to where you create or change the header of your report.**
Footer	**This button takes you to where you create or change the footer of your report.**
Delete	**This will delete the form.**
Print	***This feature is not finished***
Top Margin at:	**This will set the beginning of your form from the top of your paper. It is measured in units where 720 units equals 1 inch.**
Break Body at:	**This will determine how far down the paper your results will print before it goes to a next page. It is measured in units where 720 units equals 1 inch.**
Begin footer at:	**This will set the beginning of your footer from the top of your paper. It is measured in units where 720 units equals 1 inch.**

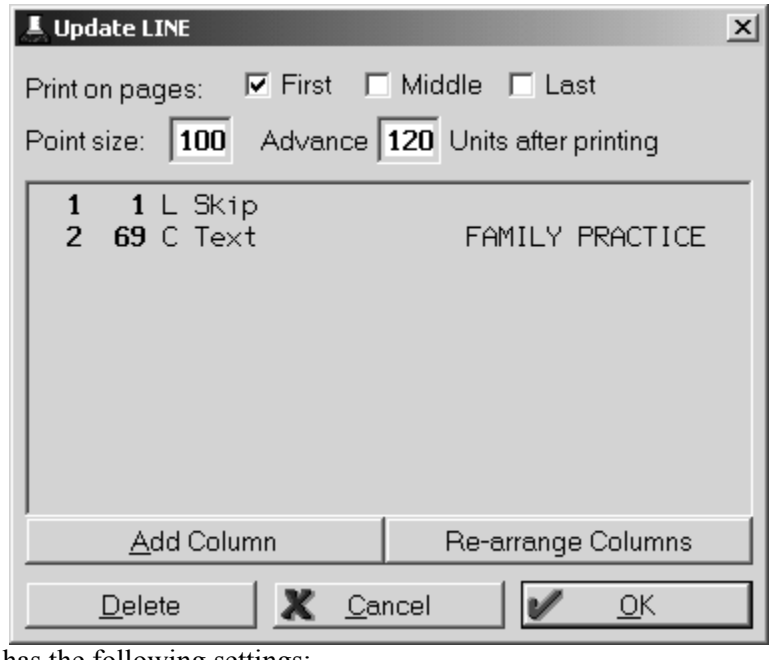
We will be using two words that you need to know; Line and Column. A Line is the information that goes across the paper. It may be made up of one, two or more Columns. A Column is a block of information such as the patient's name or the accession number.

Let's look at the text that creates the header. Click on the Header button and you will see:



Add Line	**This is how you add a line of information to your result form.**
Re-arrange Lines	**This works in the same way as sequencing the tests in a panel.**

Each of the items in the "Update [NAME] Header" box is a full line of the header. If the information contained on this line is from SchuyLab Database (i.e. patient's name, accession number, etc.) then it is described (i.e. 120 ALL PtNm DrNm Loc). If it is text that you added (Lab name and address) it will not show until you click on that line (it looks like: 120 F). Now, let's select the first line in the Update [form name] box and look at this line. This line consists of two columns of information; Skip and Text.

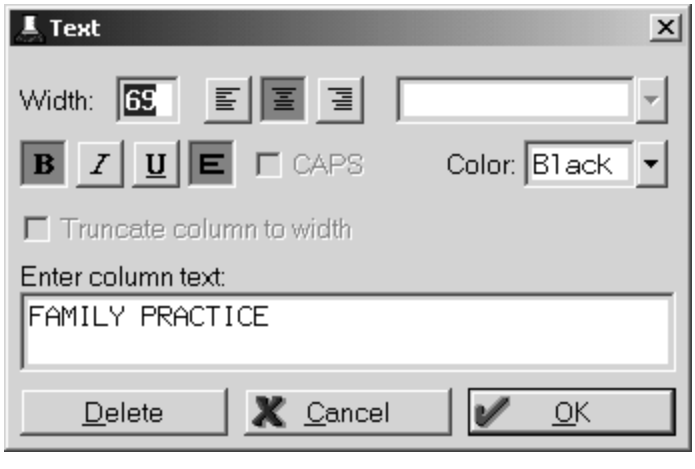


Each line has the following settings:

Print on pages:	**This line of text is presently set to be printed only on the first page of the result form (should you need a second or third page). If you wish it to be printed on every page, check the boxes** *Middle* **and** *Last* **also.**
Point size:	**You have two choices of point size, or size of your letters, 100 (which is equal to 12 characters per inch), 120 (which is equal to 10 characters per inch), or if you use "0", it will use the point size from the previous line.**

Advance ___ Units…:	**The height of your lines is determined by the number of units per line. We recommend 120 units to a line (720 units equals 1 inch). Fewer will move the lines closer together, with less "white space" between lines, more will increase the space.**
Re-arrange Columns:	**Lets say that your present report has the patient's name, medical ID and telephone number all on the same line. You want to change the order so it's the medical ID, patient name and then telephone number. Clicking on the button allows you to do that for each line. This works in the same way as sequencing the tests in a panel.**
Delete:	**Click here to delete this entire line of text.**
Add Column:	**This creates your header information that you will type in and SchuyLab will fill in automatically.**

As it sometimes happens, the name of your lab has changed, so you need to change it on the results forms. In the Update Line box, click on the line that has the name of your lab in it, in this case the second block or column.



Simply highlight the text in the text box and type in the new name. Select **OK** when you are done.

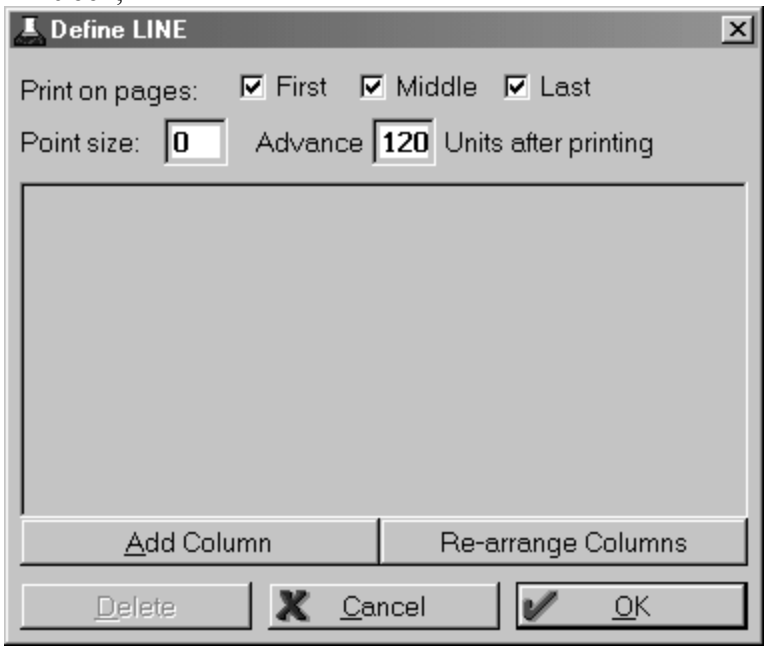
Adding a new line or column

There may come a time when you need to add another line of laboratory information. To add a line in the **Update [form name]** box, select **Add Line**. This opens the

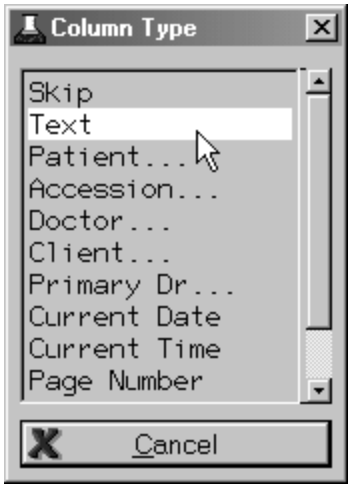
Define Line box. If this line of information is for only the first page, remove the check marks from the **Middle** and **Last** boxes.
Select **Add Column** and the **Column Type** box appears:

Skip	**Adds spaces between columns or at the beginning of the line. The amount of space depends on the number of spaces you call for.**
Text	**This is a free text area. You can type up to approximately 80 characters in a line without skips.**
Patient ...	**This includes all patient information you may want on the result form from patient's name, address, phone number, etc.**
Accession…	**Includes any all information for the accession including Received, draw, print date and time, other specimen numbers, sources, etc.**
Doctor…	**This includes all the doctor's information you may want on the result form from doctor's name, address, phone number, etc.**
Client…	**This includes all Client information you may want on the result form from Client's name, address, phone number, etc.**
Primary Dr…	**In some cases, you would want the primary doctor and the ordering doctor listed on the result form. This field provides the primary doctor's information.**
Current Date	**This adds the current date to your form, separate from the accession date.**
Current time	**This adds the current time to your form, separate from the accession time.**
Page Number	**Adds the page number of your form.**
Report Status	**Prints on the report whether this is a preliminary or final copy.**
Duplicate	**If your result form had been printed out previously, this will add the word "Duplicate" to inform those reading it that is not the original.**

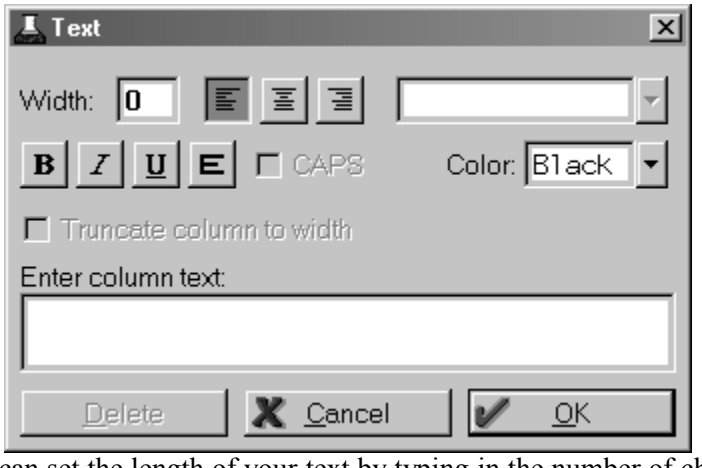
These definitions are all well and good, but how do you use them? Let us add the name of the director of the lab under the address of the lab. Go into the header of your report (see above if you've forgotten already) and select Add Line. This opens the Define Line box;



Select Add Column and select Text;



A blank Text box opens;



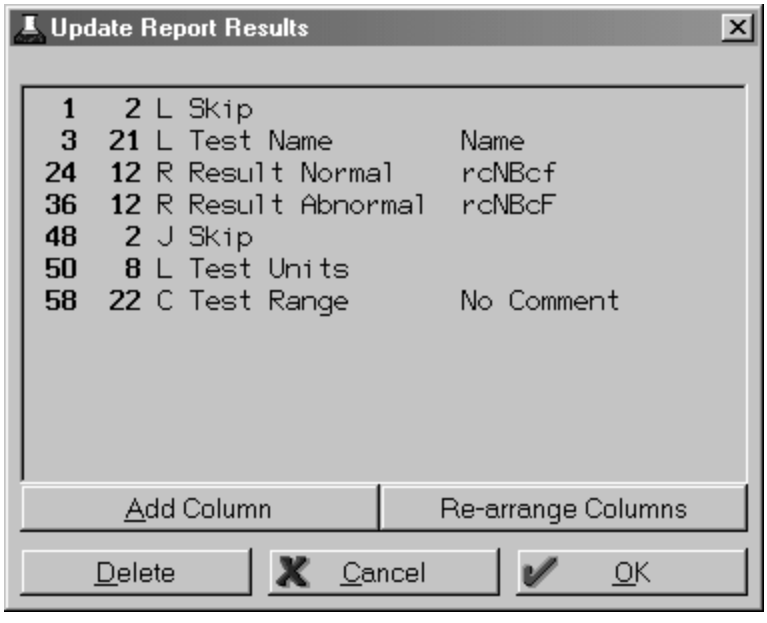
Width You can set the length of your text by typing in the number of characters you need; or if you leave it blank, enter your text and SchuyLab will count the number of characters for you. If you are using the center justification, you should type in the number of characters for the entire line (either 80 or 92, depending on the point size of the letters).

The remaining buttons work much like those in your Word program; justify the text (left, right or centered), bold, underscore, italicize or expand the text to fill the space. Move your cursor into the box below the "Enter column text" and type in the text you what (i.e. Lab Director - John E. Smith M.D., PhD, FFA).

Select OK. Next we need to place this line in the proper place of the header. The line you just made was added to the end of the header list, we want it to be just below the phone / fax number for the lab. You will need to rearrange the lines (much like sequencing the tests in a panel). Select Re-arrange Lines and scroll down to the last line, select the line (it will turn a dark grey), scroll up to the line you want the new line to go and click there. Select **Done**, **OK**, **OK**, and **Done**. You have successfully changed your report.

Reporting the Results

Remember when we said there are three parts to your report, the Header, the Footer and the Body. The body is where we set up the test names, normal and abnormal ranges, reference ranges, etc. Let's look at the Body:
Go to **F8:Tools, Setup, Report Setup, Patient Report, Accession Report, Setup, Results;**



This box also looks very much like the header boxes. You can add a column, re-arrange the lines, delete this setup, etc.

Text	**Same as the** Report Text **(see Pg. 9)**
Test	**You can choose one of five ways to have the test name printed out;** CODE**: Using the test code (i.e. IGE).** NAME**: Using the test name (i.e. IMMUNOGLOBILIN).** DESCRIPTION**: Using the full name or description of the test (i.e. IMMUNOGLOBILIN E (IgE) RANGES).** DO NOT USE**: As this says "Do Not Use".** NUMBER**: Uses the test number instead of name.**
Result	**Results can be reported out in many ways.** VALUE**: All the results will be printed in a single column whether the result are normal or not.** NORMAL**: Many report forms have two or three columns. In this column you would print the normal results of the test.** ABNORMAL**: In a two column report, this column would print the abnormal (both high and low)** HIGH**: If your report form has three columns, you would print just the high results in this column.** LOW**: If your report form has three columns, you would print just the low results in this column.**

DATE**: This adds the date you entered the results**
TIME**: This adds the time you entered the results**
FLAG**: In some cases, you may not want the flags following the results. In this case you can place the high / low flags to print in any of the columns.**
GRAPH**: If you have set up a test(s) for printing a graph (Sec. 4, Tests and Panels), this marks the area that the graph will be printed out at.**
BY**: This will add the initials of the person logged in who enter the results.**
RAW**: A Raw Value bypasses the Interpretive Range and prints out what was actually accepted into SchuyLab. As a byproduct of this, two results can now be printed simultaneously on the same test. (One is the actual datum accepted into SL; the other is the Interpretive Result. This could, for instance, also be used for MIC's and for anything else where you want the doctor to get a number-then-what-it-means.)**

Skip **Same as in the header setup it will add spaces between fields.**

You set up the body of your report the same way you set up the header, by lines and columns.

Results on Patient Reports

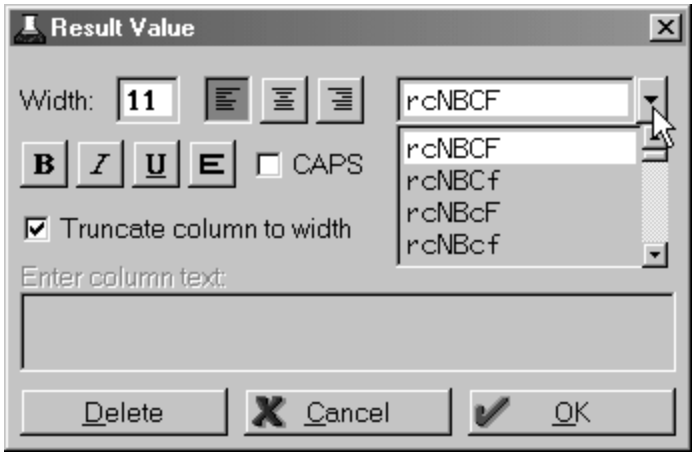
Many of the results fields are very straight forward. Date can be printed out as mm/dd/yyyy or dd/mm/yy or any other combination (click on pull down arrow to see all the options). Time is the same way. One place that may be a little confusing is how to print out the result values themselves.

When configuring the results on patient reports, there is an enigmatic field we'll refer to as the rcnbcf field, since that makes no sense whatsoever. Each of these letters controls one attribute of the result. In order to determine the outcome of any particular set of letters, however, it is necessary to also take into account the default of each position. Below is a listing of each position and the meanings ascribed thereto.

It should be noted that these are global commands that control the printing of reports, and, in that context, override the individual test definitions. Even if the test has been set to "Flag Abnormals", any abnormals that print on a report generated with the sixth bit set to "F" will not have any abnormal results flagged. If that same report is re-generated on a different format of patient report, the abnormals will then flag. (Please note that these can be simultaneously true. The Home report does not flag abnormals at the same time that the Specimen report does.) The test definition settings are what will show on the SL screens, however.

Position	General Meaning	Specific Designations
1st bit	Overrides red type color	**r** = both red and blue abnormals **R** = only red abnormals (no blue)
2nd bit	Critical flags	**c** = flags all abnormal results, inc. critical **C** = flags only critical results.
3rd bit	Presence of Notes	**n** = no notes on results **N** = notes can be present
4th bit	Bold font style	**b** = suppresses bold font **B** = allows bold results
5th bit	Controls the presence of color fonts	**c** = no color permitted **C** = allows color
6th bit	Flags	**f** = no flags on abnormals **F** = flags all abnormal results

If, for instance, you wanted a report in which abnormals were in color but not bold, you could choose either "rcnbCf" or "RcnbCf" for your results.



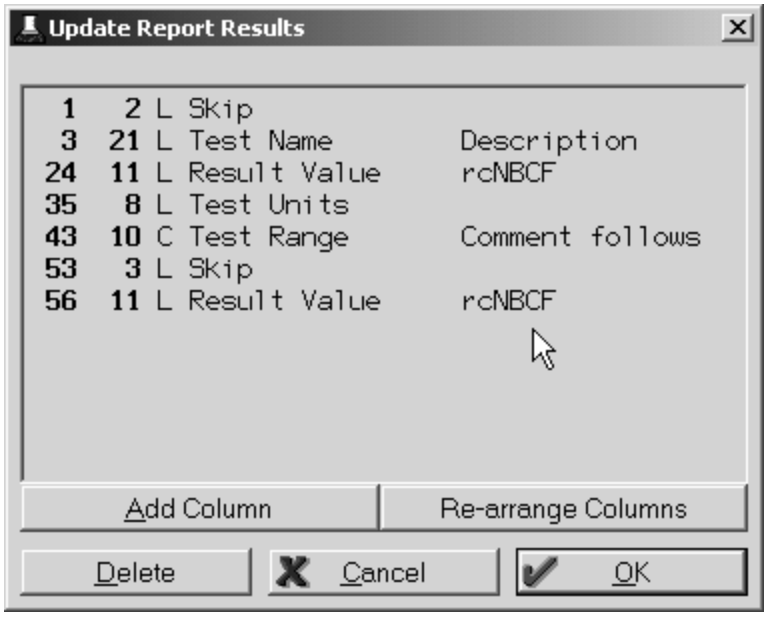
After you have made the changes you what to, added what you need and re-arranged the lines to suit you, select OK, until you are returned to one of the menus.

Prior Values Report

This report combines some of the features of a Cumulative Report with a specimen report. The Current Specimen is printed in a column along the left side of the body of the report. Then, using the standard Patient Report Results tool, additional Accessions can be defined. Those subsequent accessions do not print out in their entirety, but only repeat the results of tests present in the Current Specimen. For example, if a patient had been getting a full set of Electrolytes every day for a week, but this time had just a Na and K ordered, the report would show just the results for those two tests for the current specimen and for all prior specimens as well (unlike our Cumulative Report which would show *all* the results on prior values).

To set up this report, you use the Patient Report Results button to place more than one accession on the report. SchuyLab knows that if there is more than one accession defined, that the first one is the Current Specimen, and the next is the last visit and so on. Once this definition is made, a new check box shows up on the Configure Specimen Report box. This check box is labeled Print Prior Results, and is defaulted 'On'.

Go to **F8:Tools, Setup, Report Setup, Patient Report, Accession Report, Setup, Results, Add Column, Result, Result Value**



As you can see, we have added another result Value to the bottom of the list. The result value from the previous will print after the reference ranges of the tests (or to the right of the report).

There are a few aspects of this new report:

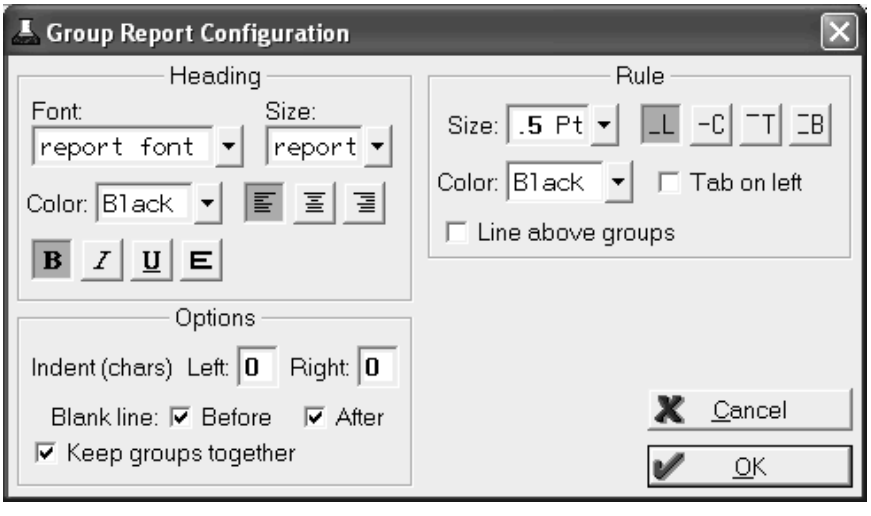
- Notes show only on the Current Specimen, but all specimens will be flagged.

- The Heading button can now handle more than one line (necessary in order to define the column labels for each accession).
- If you want a report to exactly repeat the current specimen along the right side of the paper, remove the check from the Prior Results box (now, we're not sure WHY you would want this, but you have the option).

Custom Options in Printing Patient Reports

Formatting and Color. There are tools for formatting Patient Reports and adding color to them. Go to **F8:Tools, Setup, Report Setup, Patient Report, Accession Report, and Setup**.

Select the **Groups** button. You can specify the font, size, color, justification and style of the group heading as well as a variety of rules formats, including color, size etc.



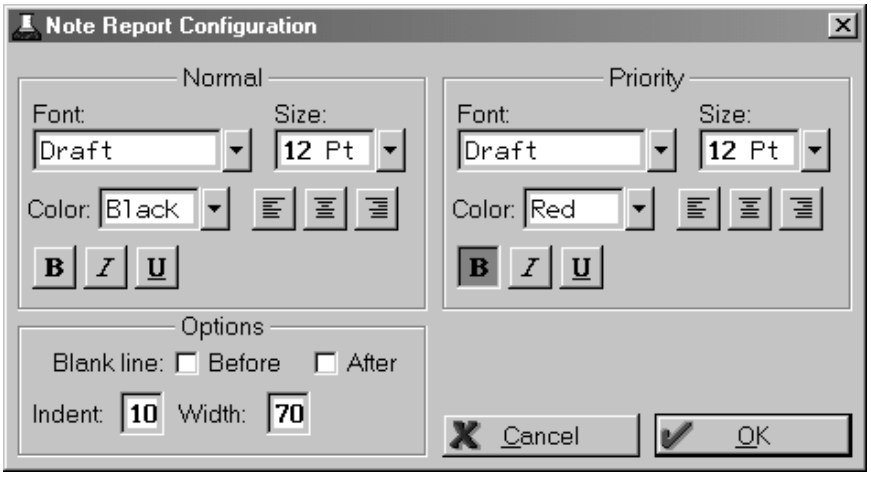
Font	**Report font is the default font you are using with your report. You can also change the fonts to Courier, Sans Serif, Roman and more. Click on the arrow and scroll down to choose the font to use.**
Size	**Default size is the size you are using on your report, or you can change it to 8, 10, 12, 14 or 16 pt sizes.**
Color	**Change the color of the report group headings.**
Justification Buttons	**You can choose to have the report group headings centered, right or left justified.**
Enhancement	**These include Bold, Underscore, Italicized and Expand to fit**

Buttons **space. Again, this only affects the Group Headings.**

Options Indent characters**: will move the group heading left or right depending to number you place in the box.**
Blank Line**: Before or After will add a blank line either before of after the group heading.**
Keep groups together**: Some of the groups may have many tests in them (i.e. Urinalysis) and combined with other groups, may have half of the tests on a second (or third) page. By checking this box SchuyLab will print this group on the next page.**

Rule **You have the option of adding a line to delineate the report groups. If you use this section, it will override the justification buttons from above.**
Size**: What size line would you like to use. You can choose from .5 pt. to a solid line.**
Color**: Choose the color of the line from black, red, purple, blue, etc.**
Tab on Left**: This will shift the group header to the right and add a short line on the left side of the group name.**
Line**: Choose to have a line to accent the heading group. Choose from either a line at the bottom of the group name, in the center of the name, at the top or top and bottom.**

Next, select the **Notes** button.



There are now two types of notes, Regular and Priority, each with its own formatting, font, size, color and style. Set up your default Priority note – you can make it red if you like, instead of just bold. When you are placing a Note on your patient or result,

you can now select between your two default types of Notes. Notes marked with the Priority flag will print according to the priority format.

Logs

SchuyLab is a wonderful program, but it's neither omniscient nor telepathic. Errors will crop up occasionally, despite everything. Most will be data entry errors, pure and simple: a CBC was ordered on a urine sample, or a patient's name was misspelled. Some will be caused by changes made elsewhere in the system: for instance, a test may be ordered on a specimen but never done, because it didn't appear on the worksheet -- because yesterday, that test was edited out of the worksheet master. Finally, there may be system glitches, such as a device that runs a test but somehow fails to transmit the result to SchuyLab.

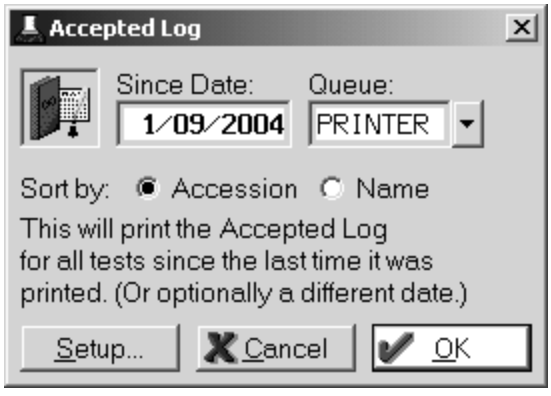
For all these reasons, it's useful to spend some time every day in data management. There are four reports, in particular, that make it easy to check on whether the database includes everything it should: the Accepted Log, the Data Log, the Order Log, and the Outstanding Orders report.

Accepted Log

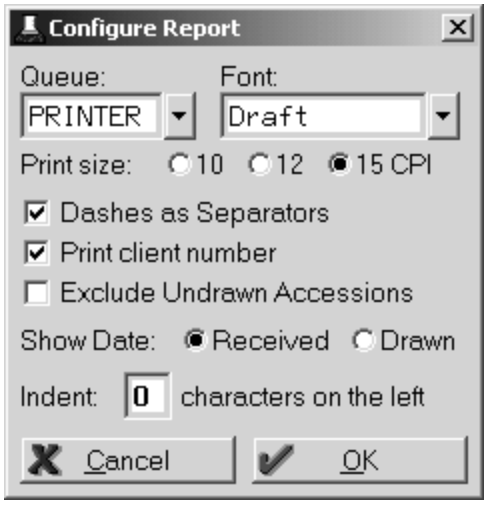
The Accepted Log is meant to be printed on a daily basis. This function prints out all the patient test results that have been accepted since the *last time* you printed an Accepted Log or you can specify a date. It's still important not to let the results accumulate too long: make it a habit to print the Accepted Log *every day*.

To print the Accepted Log:

1. Select **F6. Print.** SchuyLab displays the Print menu screen.
2. Select **Accepted Log.** SchuyLab displays a dialog box, asking if you want to print all accepted orders since the last Accepted Log was printed or you can set the date. You also have the choice of printing by Accession number or by Patient name (select Sort By :).



3. Select **OK.** SchuyLab prints the Accepted Log and returns to the Print menu screen.
4. If you need to change the printing parameters for the Accepted Log, select **Setup**. SchuyLab displays Configure Report box.



Queue	**In the pull-down box, select the printer queue to be used.**
Font	**In the pull-down box, select the font for the report (Draft is the default, and is normally used). Select the desired print size of 10, 12, or 15 CPI (Characters per Inch)**
Dashes as Separators	**Check this box if you want a dashed line between entries on the report.**
Print client number	**Check this if you want the client's ID number for each entry to be printed. (These are default.)**

Exclude Undrawn Accessions	**If your lab uses the Draw List function, you have the option of excluding any tests or panels that have been ordered, but the specimens haven't been drawn yet.**
Show Date	**Select whether you want the date printed for each specimen to be the date the specimen was drawn, or the date it was received by the lab.**
Indent	**Enter the size of the left margin for the report, in number of spaces from the left. The default is zero (0) spaces.**

When Setup is complete, select **OK.** SchuyLab returns to the Accepted Log box.

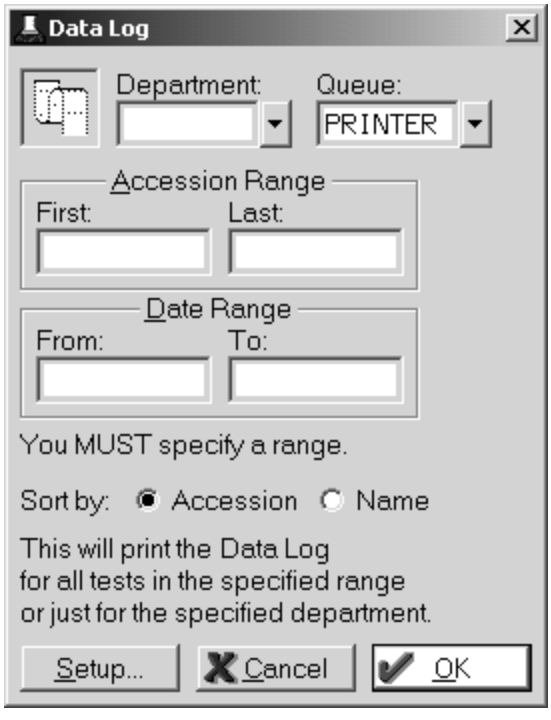
5. Select **OK.** SchuyLab will now print your log with the changes (if any) you have specified.

Data Log

Whereas the Accepted Log prints only the accepted tests, Data Log prints all tests ordered, accepted or not. It prints out all of the patient test results for the range of accession numbers or a date range you designate.

To print the Data Log:

1. Select **F6. Print.** SchuyLab displays the Print menu screen.
2. Select **Data Log.** SchuyLab displays the Data Log box.

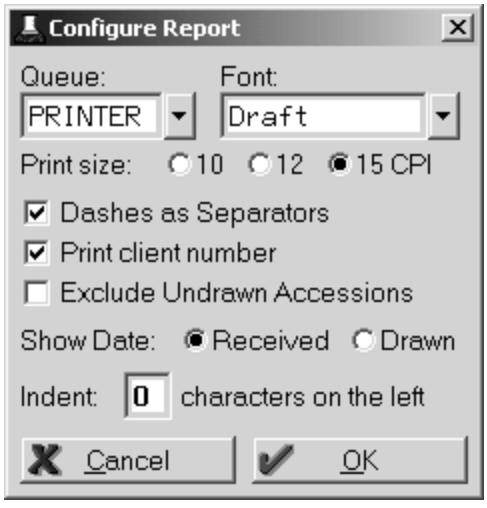


3. In the Accession Range fields, enter the first and last specimen numbers to appear on the printout. If these entry fields are left blank, SchuyLab will prompt you to add a range.

OR

In the Date Range fields, enter the date range to appear on the printout. It can a single date (2/4/04 – 2/4/04) or a range of dates (2/4/04 – 2/8/04). If these entry fields are left blank, SchuyLab will prompt you to add a range. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today..

4. The Department entry field is optional. If you select the name of a department (e.g., "CHEM") from the pull-down list, SchuyLab will print results only for tests defined as belonging to that department. (Specifying the department for any given test is done through the Test Definition icon, via **F8. Tools, Setup,** and **Test Definition.**) If the field is left blank, SchuyLab prints all test results for the given specimen range.
5. If you need to change the printing parameters for the Data Log, select **Setup.** SchuyLab displays Configure Report box.



You can then configure this report in the same way the Accepted Log can be configured.
When Setup is complete, select **OK.** SchuyLab returns to the Print Data Log box.

6. Select **OK.** SchuyLab prints out the Data Log.

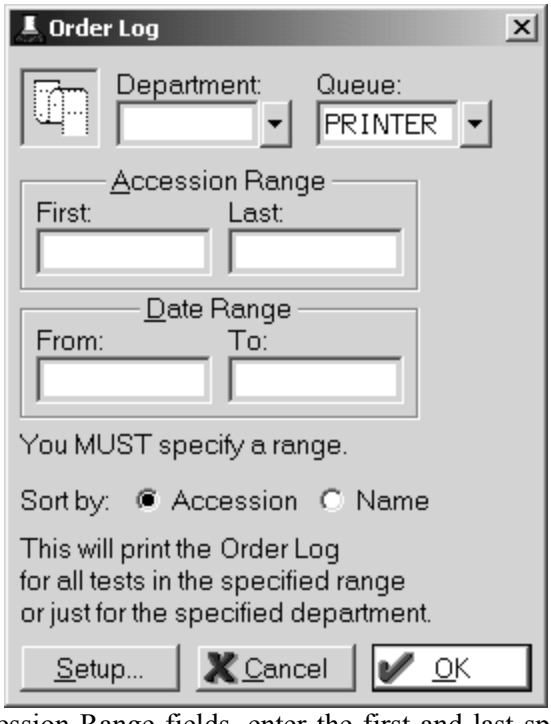
Order Log

The Order Log prints out all the tests that have been ordered, exactly as they were ordered. Individually ordered tests are listed individually; panels are listed as panels. (That is, if you ordered a CBC on Mr. Tsepesh, the Order Log would show that a CBC panel had been ordered, not that a WBC, RBC, &c., had been ordered.) The Order Log lets you compare the orders received from physicians and clients with what was actually ordered in the SchuyLab system. It should be run after any batch of specimens has been entered, for ready comparison.

Note that, for any given range of specimens, the combined entries in the Outstanding Tests log and the Accepted Log should exactly match the Order Log. Once ordered (and therefore in the Order Log), each test should either have been run and accepted, (which would put it in the Accepted Log) or else still be pending (which would put it in the Outstanding Tests log). This provides a useful cross-check of the system.

To print the Order Log:

1. Select **F6. Print.** SchuyLab displays the Print menu screen.
2. Select **Order Log.** SchuyLab displays the Order Log box.

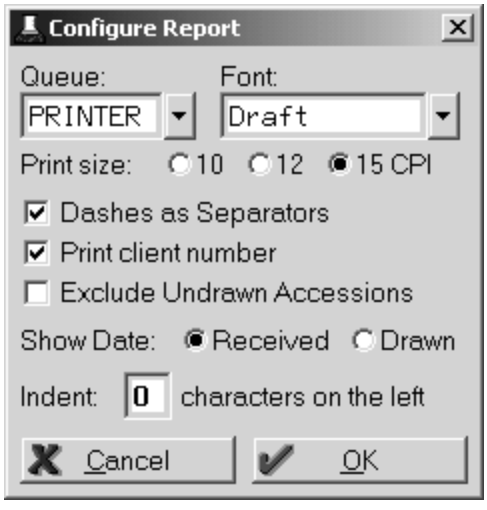


In the Accession Range fields, enter the first and last specimen numbers to appear on the printout. If these entry fields are left blank, SchuyLab will prompt you to add a range.

OR

In the Date Range fields, enter the date range to appear on the printout. It can a single date (2/4/04 – 2/4/04) or a range of dates (2/4/04 – 2/8/04). If these entry fields are left blank, SchuyLab will prompt you to add a range. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.

3. The Department entry field is left blank, SchuyLab prints all test orders for the given specimen range.
4. If you need to change the printing parameters for the Order Log, select Setup. SchuyLab displays Configure Report box.



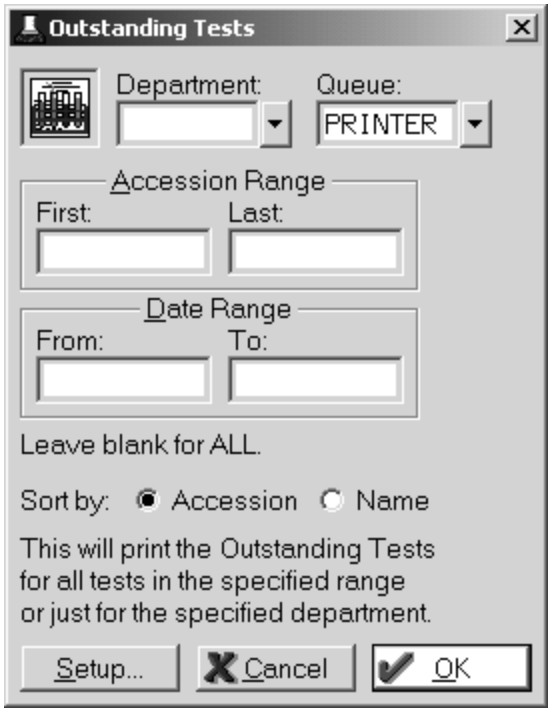
You can then configure this report in the same way the Accepted Log can be configured.

5. When Setup is complete, select **OK.** SchuyLab returns to the Order Log box.
6. Select **OK.** SchuyLab prints out the Order Log.

Outstanding Tests

The Outstanding Tests log prints out all of the pending tests -- that is, tests that have been ordered, but with no results accepted. This log enables you to keep track of tests which might otherwise 'slip between the cracks' and disappear. This log should be run each day and (except for batched tests, sendouts, and multi-day microbiology tests) should be sparse. You should know the rationale for each test appearing on this log.

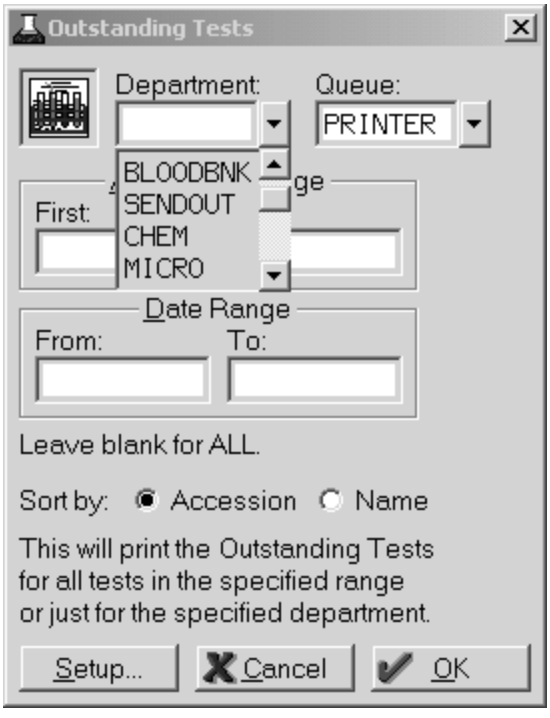
1. Select **F6. Print.** SchuyLab displays the Print menu screen.
2. Select **Outstanding Tests.** SchuyLab displays the Outstanding Tests box.



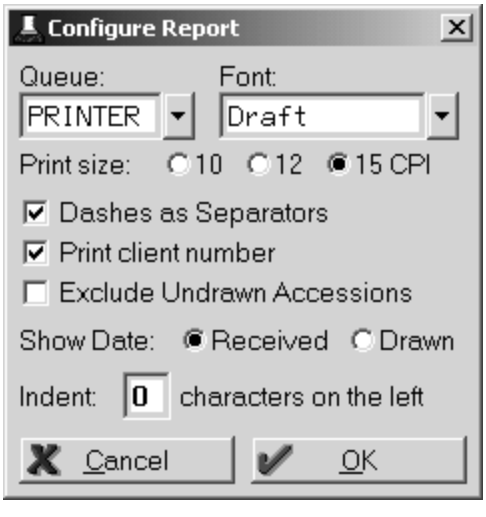
3. For this log, you do not need to enter an accession range or a date range. If these fields are left blank, SchuyLab will go thru its files and find any and all tests that have not been resulted and accepted.
   Or, in the Accession Range fields, enter the first and last specimen numbers to appear on the printout.

OR

   In the Date Range fields, enter the date range to appear on the printout. It can a single date (2/4/04 – 2/4/04) or a range of dates (2/4/04 – 2/8/04). All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today. If these two fields are left empty, SchuyLab will print all tests that are still pending. We suggest you use this method so nothing gets forgotten.
4. The Department entry field is optional. If you select the name of a department (e.g., "CHEM") from the pull-down list, SchuyLab will print results only for tests defined as belonging to that department. (Specifying the department for any given test is done through the Test Definition icon, via **F8. Tools, Setup,** and **Test Definition.**) If the field is left blank, SchuyLab prints all pending tests for the given specimen range.



5. If you need to change the printing parameters for the Outstanding Tests, select **Setup.** SchuyLab displays Configure Report box.

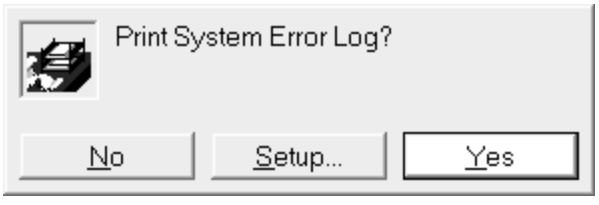


You can then configure this report in the same way the Accepted Log can be configured.
When Setup is complete, select **OK.** SchuyLab returns to the Outstanding Tests box.

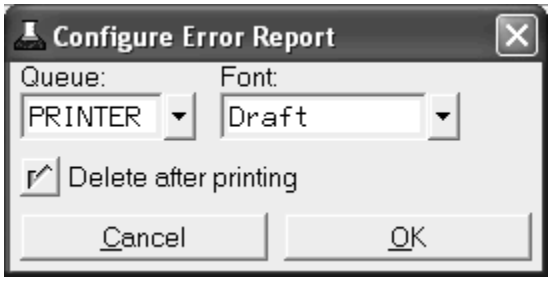
6. Select **OK.** SchuyLab prints out the Outstanding Tests log.

Error Logs

Nothing in this life is perfect (although we strive for it). And there may be times when, despite everything we try to do if a problem occurs with your SchuyLab, we just can't find the solution to the problem. In that case, there is a report we will ask you to print out and fax to us. That can be found under F6, Print, Miscellaneous Reports, RPTERROR.



This is a cumulative report, that is, it keeps track of everything ever done in SchuyLab and is NOT deleted when you run a Cleanup. If you click on the Setup button, a configure box opens. If the box for "Delete after printing" is NOT checked, every time you need to print out this report, it will bigger and bigger. It is suggested that this box be checked.

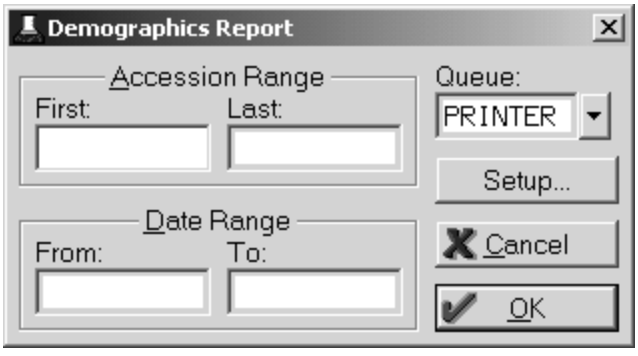


Demographics

Demographic reports are specialized laboratory management reports either pre-defined or customized to your own needs, to see who is sending what to you and how your lab is doing. Your SchuyLab system comes with three or four demographics reports already prepared for you. If you are a manager, you can specify what you would like printed then turn the every day printing jobs over to a tech. If you are comfortable with computers, you can also customize the reports to your lab, or use the default heading setups that SchuyLab has provided.

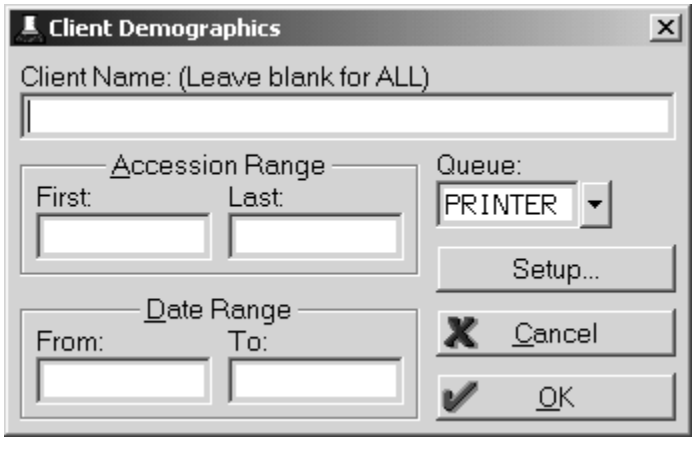
Demographics Report

One report you may consider is the basic patient demographics report, which prints a report of all patients and their demographics (date of birth, doctor's name, &c). This report must have a specified date range or specimen range put in the appropriate boxes.



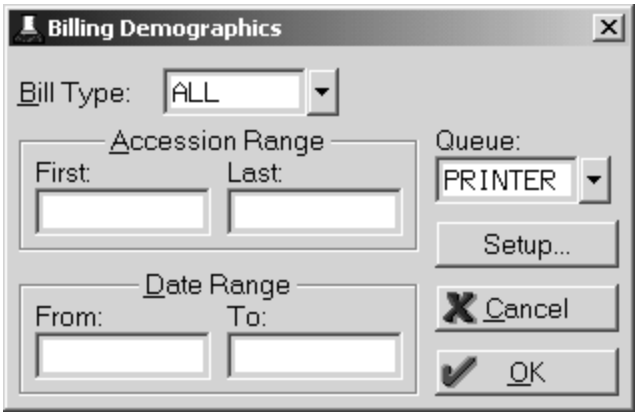
Client Demographics

Or perhaps if you would like to see how many patients a local clinic has been sending you. You can print a report for one client or for all of them. (That is, all the patients belonging to the St. John Medical Group, for instance.) This report must have a specified date range or specimen range put in the appropriate boxes



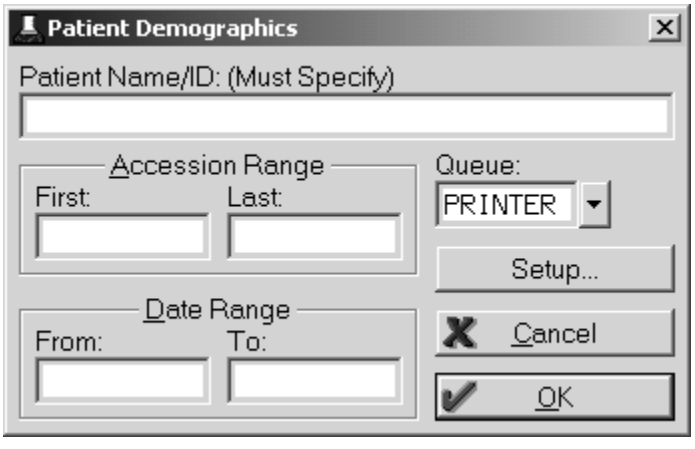
Billing Demographics

You can help your billing department by printing a report of all patients and their demographics, sorted by bill type of patient. (That is, all the Medicare patients, for instance.) The report is limited to a given date range, specimen range or Bill Type.



Miscellaneous Reports

In this area we can find the Patients Demographics and a variety of other reports you may have made. The Patients Demographics report deals with a single patient and lists the accession number, what was ordered and the results of the tests. Any other reports you create will be found in this area.

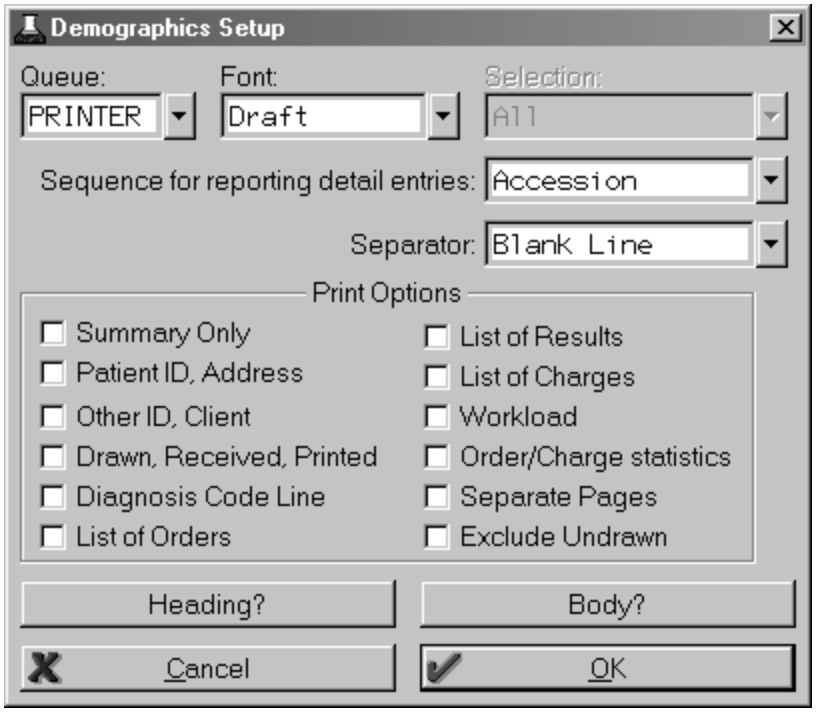


Let us look at a demographics report and see how we can make it fit our needs. Remember, depending on your computer skills, you have the option to use the default setups we have, or you can change the heading and body of the report.

Select **F6, Print.**
Select **Demographics Report.**

Select **Setup.**

SchuyLab displays the Demographics setup box.



Queue — **You can choose to always print at your default printer (in this case our default printer is called PRINTER), to another printer in the network (if you have a network printer connected) or to fax the report (again, if you have the SchuyFax module) by clicking on the arrow to the right and selecting the correct printer from the list.**

Font — **Report font is the default font you are using with your report. You can also change the fonts to Courier, Sans Serif, Roman and more. Click on the arrow and scroll down to choose the font to use.**

Sequence for reporting detail entries: — **You can print a report, in numerical order by Accessions, numerical order by Patient ID or alphabetical order by Patient Name, that will list the accession number, patient name, tests ordered, etc, depending on what options you chose.**

Separator: — **You have a choice of four ways to separate each patient's information; Blank Line, dashes, 1 pt. line (rule) or 1 pt. double**

line (rule).

Print Options: **What patient information do you want in the report?**
Summary**: (does not contain any individual patient information)**
Patient ID, Address**:**
Other ID, Client**:**
Drawn, Received, Printed
Etc. Once you have selected the options you want, an assistant should be able to generate the report for you by entering either the accession range or the date range.

Heading?: **If you are setting up a customized report, you can add the headings that you want to use; Free Text, Current date and time, age number, etc. IF you use the heading area, it will override the default headings.**

Body?: **If you are setting up a customized report, you can add the fields that you want to use; Patient Name, ID, address, Accession ID, Doctor Name etc. IF you use the Body area, it will override the default headings.**

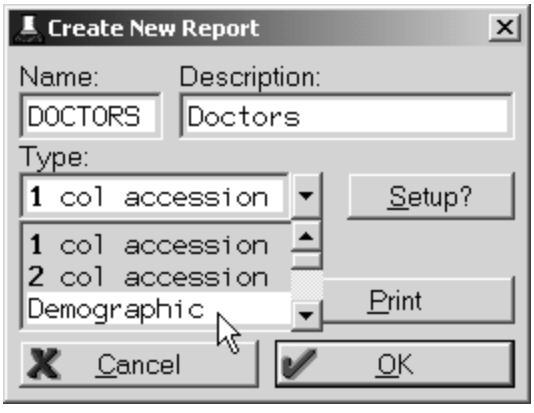
Some additional parameters have been added to our Reports, both the pre-defined reports in F6 Print and the user-defined formats that are created in Setup, Report Setup, and Reports.

- **Selection** now includes the new item: Location
- **Exclude Undrawn** is a stated option that limits the report to only those accessions that have actually been collected. Accessions marked "Draw Required" will not be included.

Creating a Customized Demographics Report

So, SchuyLab has provided you with four wonderful and informative reports, but as the manager you want to see what each doctor is passing your way. So what do you do? OK, let's create a new demographics report. Just a note, to get into the Setup area of SchuyLab, you MUST have security clearance. If the Setup button is grayed out, you do not have proper clearance.

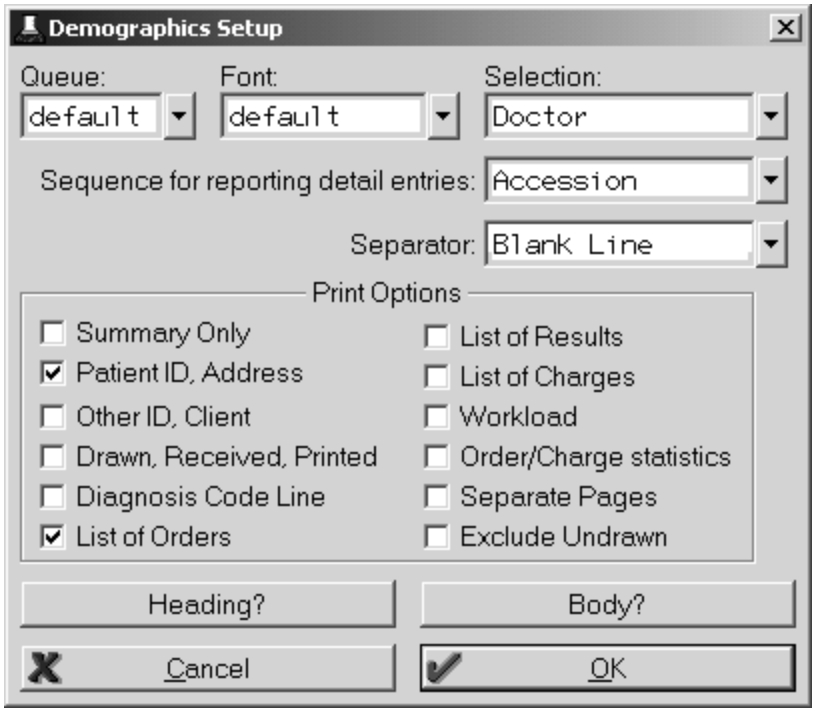
Go to **F8:Tools, Setup, Report Setup, Reports, New Report**



As you can see, we have named our new report DOCTORS, and under Type;, we have chosen Demographic. This tells SchuyLab what kind of report we are creating.

Select **Setup?**

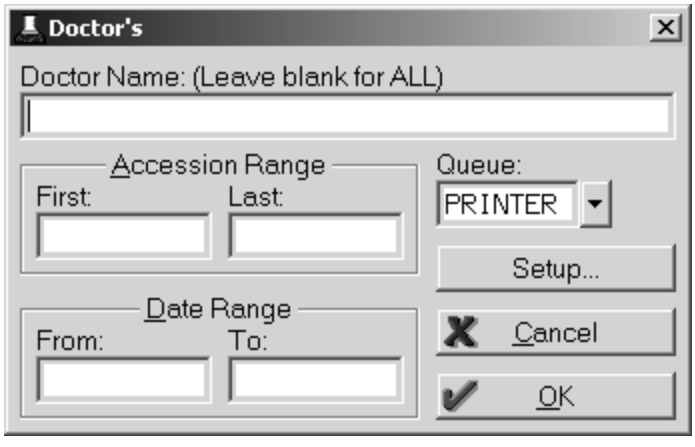
This is where we configure our report. What do we want printed? Do you want the patient's name, the list of orders, and any charges? We can go with the minimum and add more details later if you find you want more information.



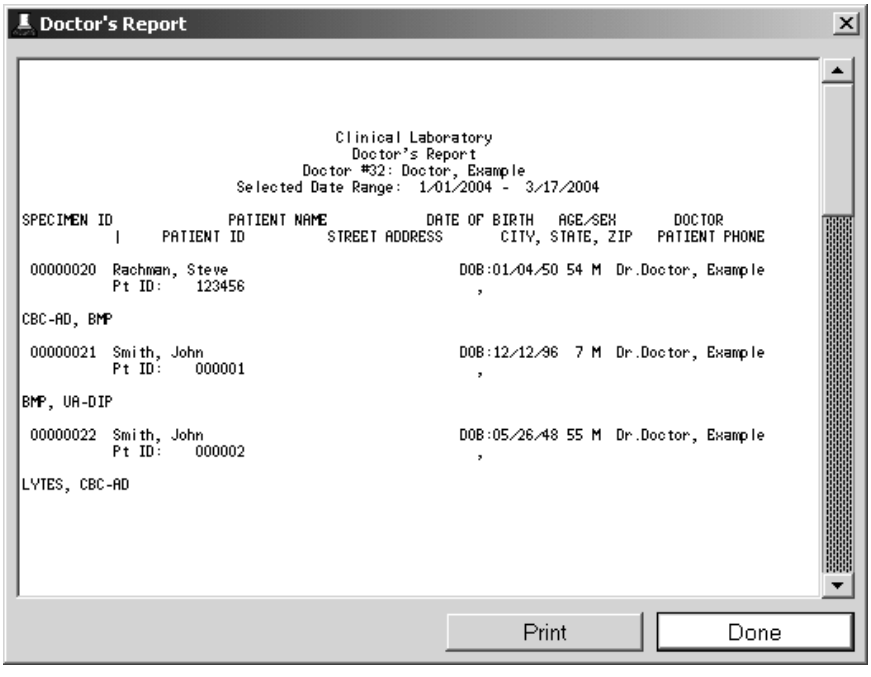
Very important note: under **Selection**, select Doctor (as this is a doctor's report). Otherwise SchuyLab will not know what kind a report you want. Some of the other selections we can choose from are:

Client	**A Client Demographics will print out any information you need by Client's name. You can print for an individual client, or for all of them. This demographic report is already set up for you.**
Bill Type	**A Billing Demographics report will print out your patients by how they are billed. This demographic report is already set up for you.**
Salesrep	**This report will print out a report by the sales rep ID in the Client Record.**
Drawn By	**This report will print out a report by who's ID is in the Drawn By box of each accession.**
Location	**This report will print out a report by the Location in the Patient's Demographics Record.**
Single Patient	**This report will print the tests ordered and the results for a single patient, for a specific date or accession range.**
Or any combination of the above	**You can also print a report that is sorted by Client and Doctor, Client and Bill Type, Client and Drawn by, and many other combinations.**

Now, when you go under F6, Print, Miscellaneous Reports and select DOCTORS, type in the doctor's name or ID number and fill in either the Accession Range or the Date Range.



Using the default heading setting, the report we get looks like:


Doctor's Report
Clinical Laboratory
Doctor's Report
Doctor #32: Doctor, Example
Selected Date Range: 1/01/2004 - 3/17/2004
SPECIMEN ID | PATIENT ID PATIENT NAME STREET ADDRESS DATE OF BIRTH AGE/SEX CITY, STATE, ZIP DOCTOR PATIENT PHONE
00000020 Pt ID: 123456 Rachman, Steve DOB:01/04/50 54 M Dr.Doctor, Example ,
CBC-AD, BMP
00000021 Pt ID: 000001 Smith, John DOB:12/12/96 7 M Dr.Doctor, Example ,
BMP, UA-DIP
00000022 Pt ID: 000002 Smith, John DOB:05/26/48 55 M Dr.Doctor, Example ,
LYTES, CBC-AD
Print
Done

As you can see this doctor has only sent three patients our way in a little over three months. Perhaps it's time it re-negotiate the contract?

New Patient Report

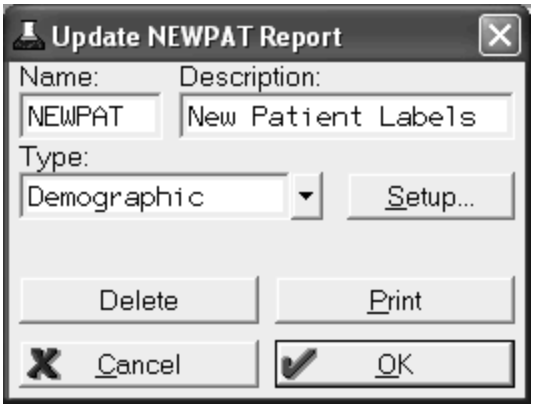
Another form of Demographic report is the New Patient Report. This can be used to print out a list of new patients, in order of accession, for each of the doctors.

Setup

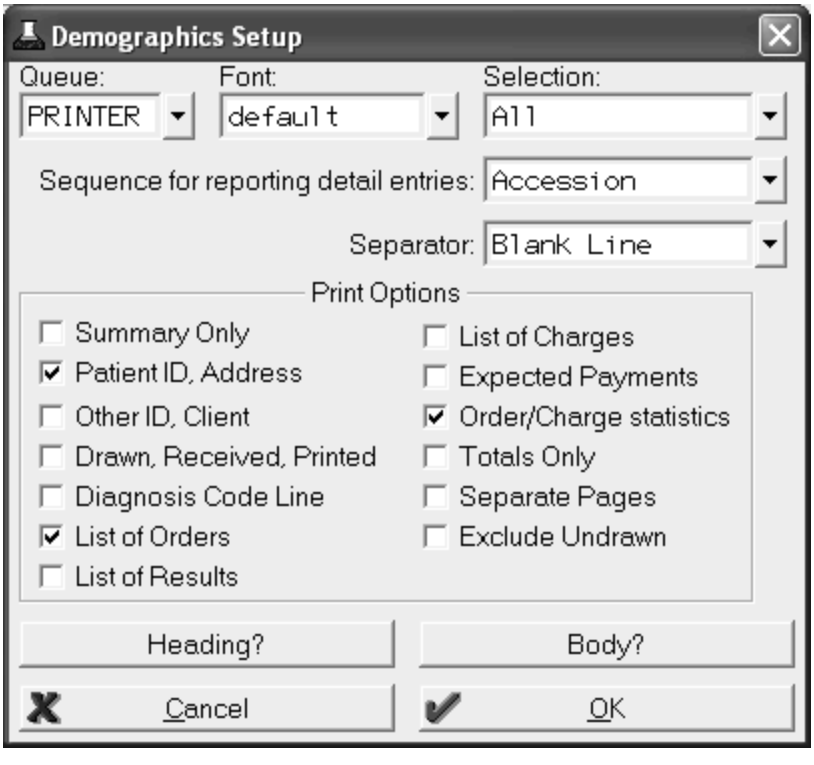
First is setting up what you want printed on the report.

Go to **F8:Tools, Setup, Report Setup, Reports, New Report**

In the Report List, scroll down until you see a report named NEWPAT. This is the New Patient's report and it has already been setup for you, but let's take a look at it.



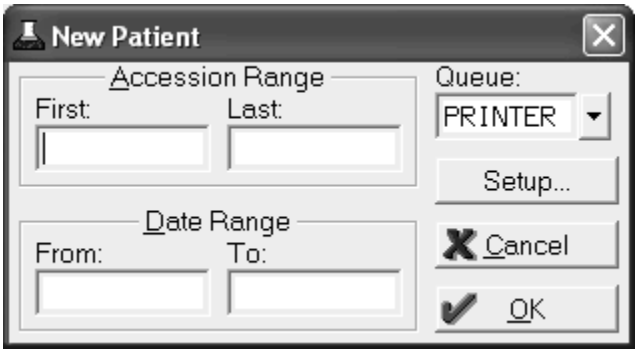
As you can see, it is set up as the other demographics reports. Now go into **Setup…**



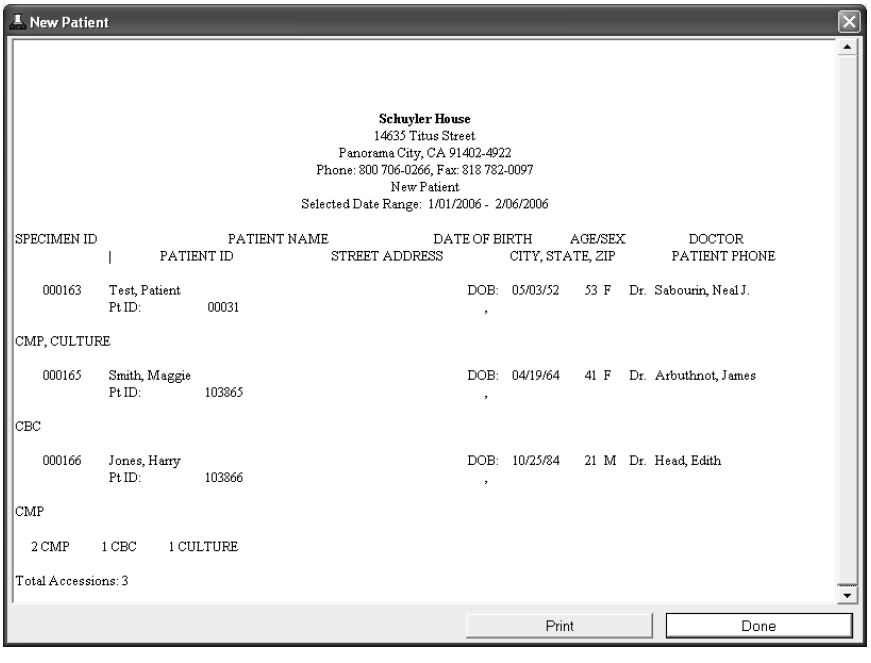
For this report, we've chosen to list the patient name, ID#, address, what was ordered and a summary of what is ordered.

Manually Print Report

Select **F6, Print**
Select **Miscellaneous Report**
Select **NEWPAT**

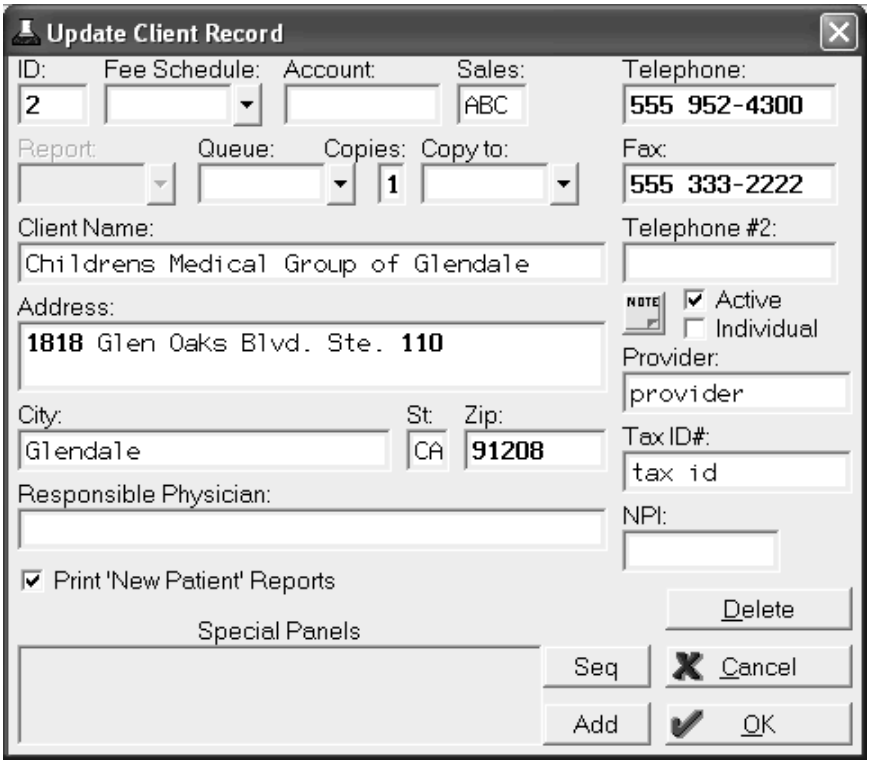


Insert either the accession or date range for the report and click OK. Here is an example of what the report will look like.


New Patient
Schuyler House
14635 Titus Street
Panorama City, CA 91402-4922
Phone: 800 706-0266, Fax: 818 782-0097
New Patient
Selected Date Range: 1/01/2006 - 2/06/2006
SPECIMEN ID | PATIENT ID
PATIENT NAME | STREET ADDRESS
DATE OF BIRTH | CITY, STATE, ZIP
AGE/SEX
DOCTOR | PATIENT PHONE
000163 Test, Patient DOB: 05/03/52 53 F Dr. Sabourin, Neal J.
Pt ID: 00031 ,
CMP, CULTURE
000165 Smith, Maggie DOB: 04/19/64 41 F Dr. Arbuthnot, James
Pt ID: 103865 ,
CBC
000166 Jones, Harry DOB: 10/25/84 21 M Dr. Head, Edith
Pt ID: 103866 ,
CMP
2 CMP 1 CBC 1 CULTURE
Total Accessions: 3
Print
Done

Automatically Print Report

You can have this report print with every new patient instead of a single report of all new patients for a specific time period . If you go into the Update Client records (F8, Tools, Doctor Records), you will find a box that you can check to turn this feature on. Note that it MUST be checked for every client.

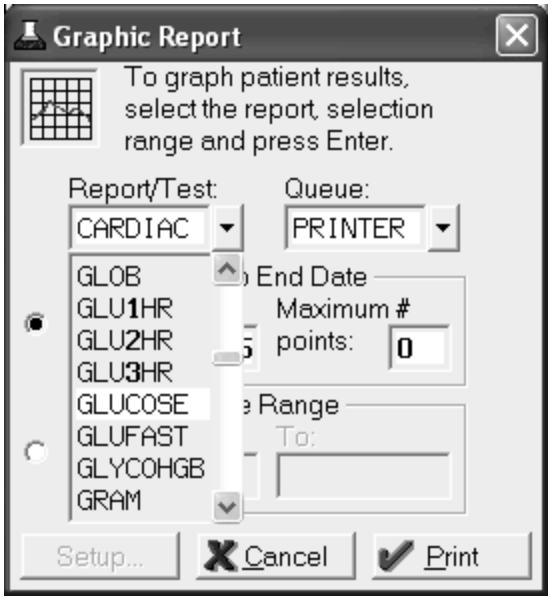


Graphic Reports

Graphics reports aren't just for PSAs anymore. In fact any test that can be resulted (using numeric results only) can now be graphed. This means that a patient who is diabetic can have a graph of their Glucose results over the last month, year, or even multi years. A patient undergoing Chemo or Radiation therapy can have the white or red blood cell results graphed.

There are two forms of the graphic report. The simplest is the single test graph which you can print from the F6, Print menu. When you click on the Graphic Report icon, SchuyLab asks you to enter the patient you are interested in.
OR
you can go to the patient's file (F2, Patient) and click on the Graphic Report icon there.

Either way, SchuyLab will open the Graphic Report box. Under Report/Test, choose the test you want to graph.

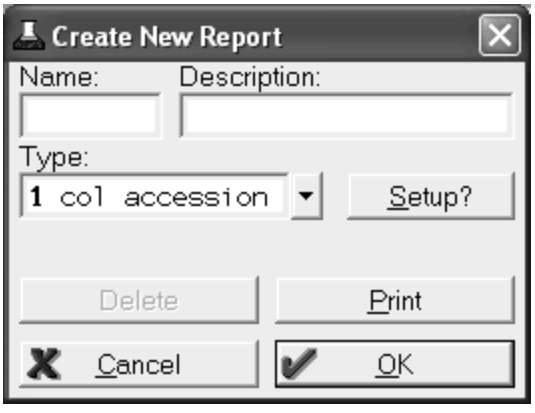


SchuyLab will then print out a graphic report for that test, for that patient. The second form of graphic reports is the multi-test graph. In many cases the doctor may want to see both the PSA and the PAP report in graphic form for his male patients. There are two rules to remember in creating a multi-test graph.

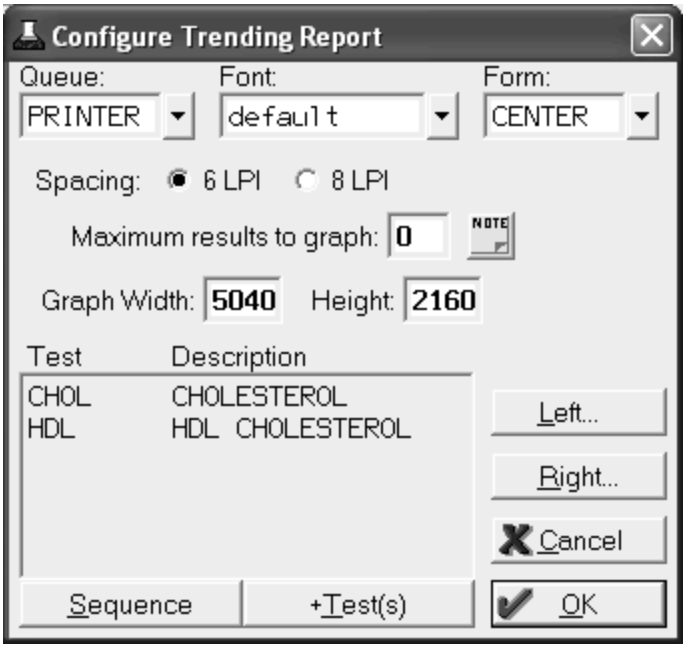
1. You can only have two different units in a graph. Most of the tests you have also have units tied to them.
2. You are limited to six tests. Just remember that any more than three or four tests and the graphs can get difficult to see.

Set Up

Go to **F8:Tools, Setup, Report Setup, Reports, New Report**



Name your report (in this case let us name it CARDIAC and use this as the description also).
The type of report will be a graphic.
Select **Setup?**

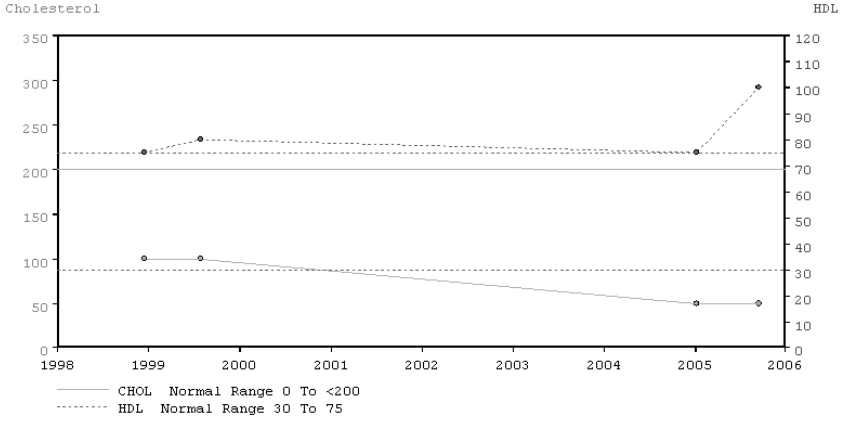


Queue — **This will set the default printer for this report. You have the option of printing to any printer on your network (if you have a network).**

Font — **This will set the font style of your report. The options you have are:**
Draft (uses a draft font for your report), Courier, Prestige,

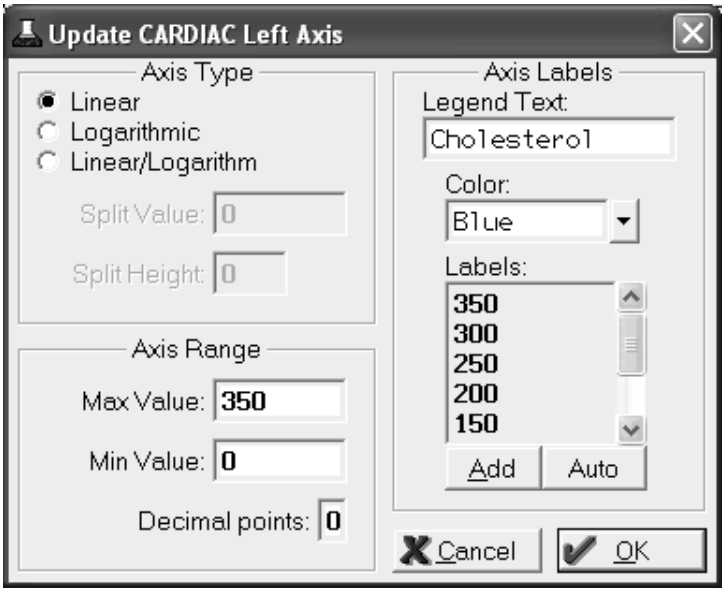
	Script, San Serif, Roman, Bold PS and Orator.
Form	**This form will take advantage of your result form headings. But you must select your report form. If this box is left blank, SchuyLab will then go to the report heading under F8, Tools, Setup, Reports, Headings.**
Spacing	**You can choose between 6 LPI (Lines per inch) or 8LPI.**
Maximum results to graph	**If you leave this number at "0", SchuyLab will include as many points as possible. Of course, this also means that if you have a patient that has been coming in for many years, you can have many points to look at. If you want to set the number to a more reasonable (let's say 20), SchuyLab will then only graph the last 20 times this (or these) test(s) was performed.**
Graph Width / Height	**While you can change the width and height of the graph, many parts of the graph is hard-coded, or unchangeable. If you do make changes, your graph may not look correct.**
+Tests	**This is how you add the tests for your graph. There is a limit of 6 tests maximum.**
Left / Right	**You can further customize the graph by specifying which test values are shown where. As you can see in the picture below, we have set this graph up with the Cholesterol ranges to print on the left side, the HDL ranges on the right.**

CARDIAC



	CHOL	HDL		CHOL	HDL
12/15/98 12:06	100	75			
000090					
7/29/99 15:21	100	**80** H			
000125					
1/04/05 10:42	50	75			
000144					
9/11/05 16:16	50	**100** H			
000154					

We can also custom the axis's;



Axis Type

A Linear **axis is the kind most of us are used to seeing. The "tick" marks are evenly spaced along the axis, and the interval between them is constant: e.g., 1, 2, 3, 4, 5, or 5, 10, 15, 20, 25. This is most useful when the results being plotted fall into a limited range, and you want to see the tiny details.**

A Logarithmic **axis still has evenly spaced tick marks, but instead of each one increasing by an added number (1 or 5, in the above examples), they increase by a multiplied factor: e.g., 1, 10, 100, 1000, or 1, 30, 100, 300. This is most useful when the results being plotted fall into a very large range, and you want to be sure to get them all on the graph.**

A Linear-Logarithmic **axis starts out Linear up to some defined number, and is Logarithmic for values above that. This is used when you want to see the tiny details when the results have a low value, but still want the results on the graph if they're very high. PSA is like that: we want the results Linear in the range of 0.0 to 4.0 (for normal patients, or patients being watched for prostate problems), but Logarithmic for results > 4.0 (and PSA can get really high for cancer patients). The tick marks along the axis generally look like 0, 1, 2, 3, 4, 10, 30, 100, 300, 1000.**

Axis Labels

How the axis's are to be labeled:
Legend Test **– the name of the test**
Color **– if your printer prints in color, what color do you want it to be.**
Labels **– With each test you graph, you can also set how the range is shown. In the above Cholesterol test, the normal ranges are 0 – 200. Our graph is to show ranges up to (and exceeding) 350. We don't need numbers showing every 10 points, so we have set our labels for every 50 points. On the other hand, our other test (HDL) is showing the points between 0 – 120, so in this case we can set the labels for every 10 points.**

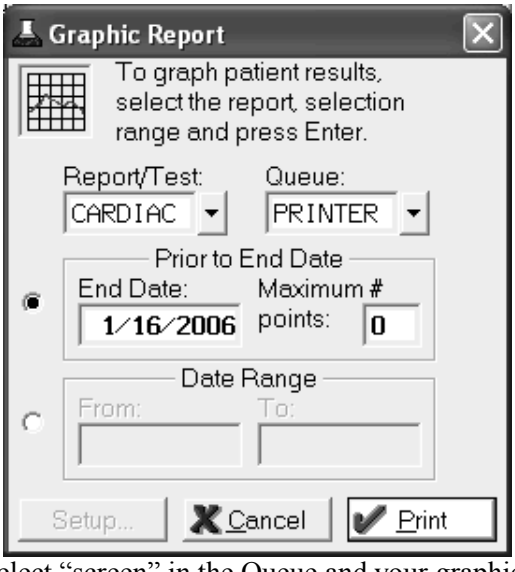
Axis Range

Just like setting the normal ranges on a test, you can set the minimum value (usually "0") to the maximum value to be reported. In the case of the above graph, the CHOL has a reportable range from 0 – 350.

Sequence **Use this button to place the tests in the reportable order.**

+Test(s) **Click on this button to add the test(s) to the graph**

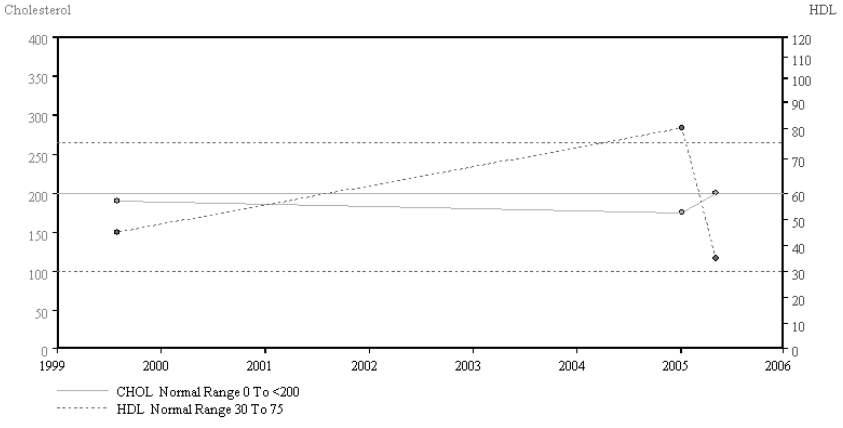
After you have set everything up or at least added the tests, select OK. Go to F2, Patient, select the patient you want the graph on (we're using Test, Patient) and in the patient screen select Graphic Report.



To view the report, select "screen" in the Queue and your graphic report looks like:

PATIENT: **Test, Patient** DOCTOR: Doctor 15 LOCATION:
MED. RECORD #: 000158 SEX: F AGE: 53 DOB: 5/03/1952 OTHER ID: 12345678
ACCN#: 000158 DRAWN: 5/03/05 14:21 RECV'D: 5/03/05 14:21 PRINTED: 1/16/06 11:51 FINAL

CARDIAC

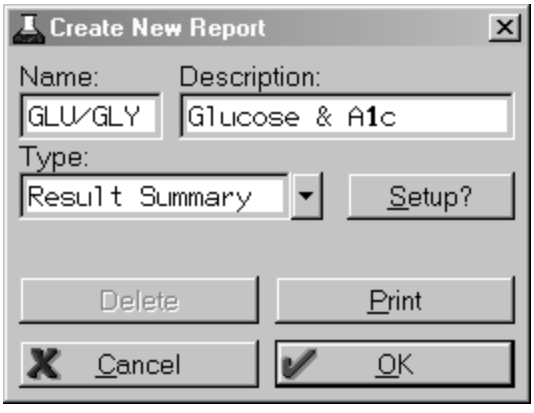


	CHOL	HDL		CHOL	HDL
7/29/99 15:21 000125	190	45			
1/04/05 10:42 000144	175	**80** H			
5/03/05 14:21 000158	**200** H	35			

Result Summary Report

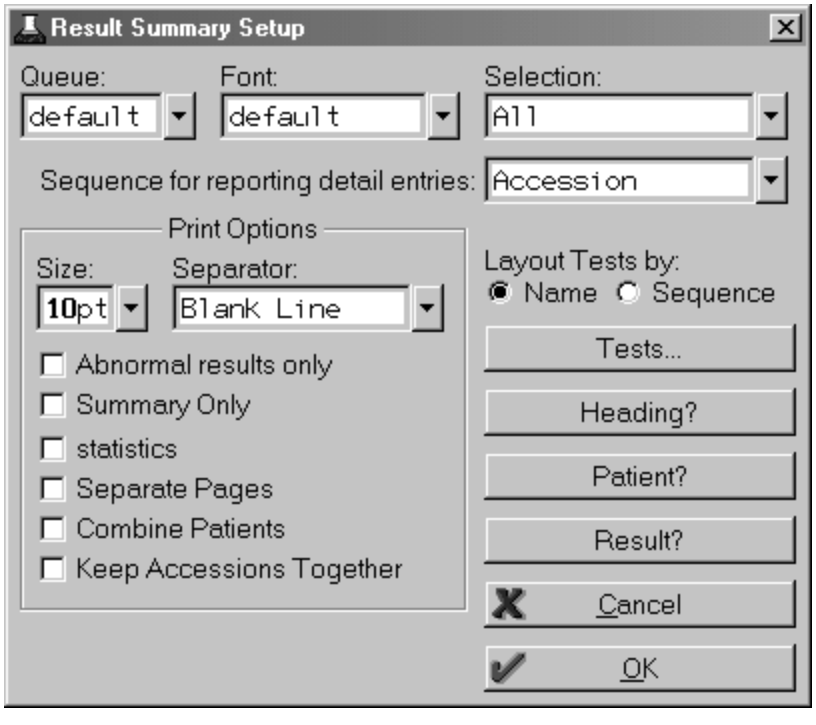
This is a Patient Demographics style report that is created in Reports like the other user-designed Demographics Reports. Its purpose is to print a strictly formatted report containing only a subset of the tests available at your lab. If you want a report containing only the Sodiums, or just the A1C and Glucose results, this is the report to use. Like similar reports, once it is designed and created in the Report utility (which has a high security clearance), it is routinely generated in **F6: Print, Miscellaneous Reports.** Unlike the other reports, the Result Summary will require more setting up.

The new Result Summary report is set up under **F8:Tools, Setup, Report Setup, Reports, New Report.** Name the report; fill in the description and under **Type:** select RESULT SUMMARY.



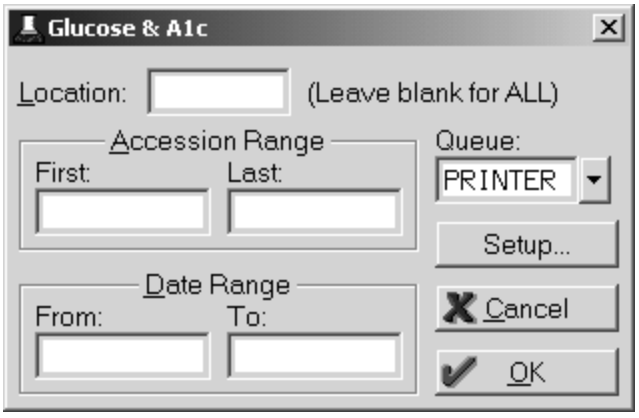
This report derives from the demographic report, so some of the mechanisms should be familiar. The main difference is that it allows you to select a subset of tests, and to have more options to configure your report graphically. As you can see, we have also named this report and put in a description.

Select **OK**;

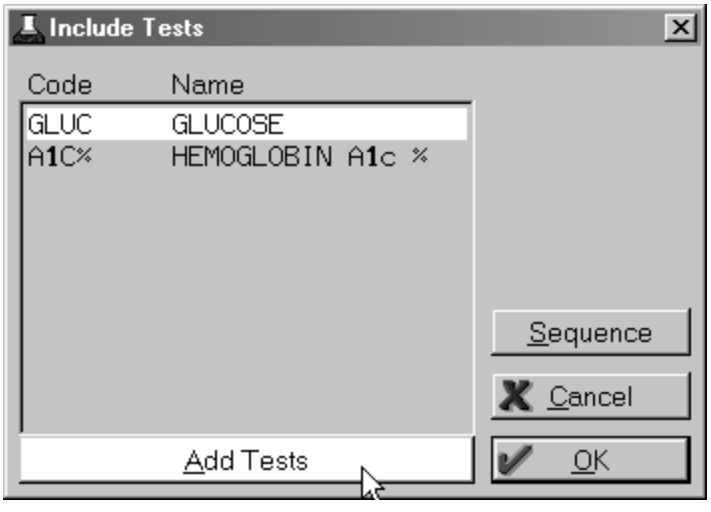


If in the **Selection** box, Location is selected as the parameter used in sorting the information, a field appears in the Result Summary box allowing you to specify

which location (ER, ICU, etc.). A single location can be selected or all (in the selected accession/date range).



Many of these sections you have seen in the previous pages. Let us focus on those areas that haven't been seen before. To continue setting up the Result Summary, select the **Tests. . .** button. You will add the tests for this summary report by selecting those tests from the list that will pop up. This is a list of all the tests you have listed in your SchuyLab system. Simply "highlight" the test(s) in the list that you need for this report and then select **OK**.



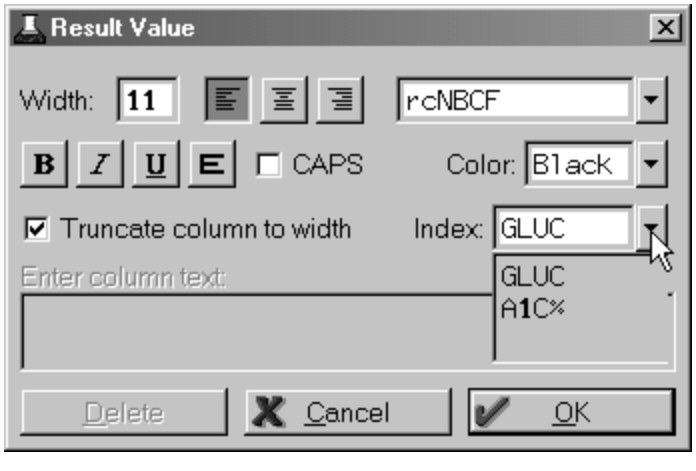
The Result Summary Report takes more setting up than the other reports and there are only a few default headings to use. There is a default heading presently of your lab's name (this is set up in the Headings area under Report Setup), the name of this report (that is the description) and either Accession Range or Date Range. If this is all you require, you don't need to add anything else. If you do want to customize the report, in the Setup box, there is a **HEADING** block, which could contain such

additional information as your lab's name and address. Options you can add in the heading are:

Text	**Add a comment about the report, or anything else you may want (The lab's name, address, etc).**
Current Date / Time	**Prints the current date and time of the report**
Page Number	**Prints the page number**
Report Status	**Prelim (if any results are still pending) or Final will be printed on report.**
Duplicate	**Duplicate will be printed if this is a duplicate of the original report.**

The **PATIENT** block is no different than you have seen in SchuyLab's other report utilities. You can print out your own comment line, any and all patient information, the client's information, primary doctor and more (see previous section). The PATIENT block can be configured separate from the RESULT block, although patient information can be used in the RESULT block also. Under **Print Option** if you put a check mark in the **Combine Patients** box, this will allow the PATIENT block to be omitted if multiple results for the same patient are present.

The **RESULT** block is similar to the Results block under Patient Results Form, but has a new feature – Index:. You will see a similar box when you set up any of the RESULTS (High, Normal, etc) in this report. How this works is you can match the Glycohemoglobin test (for example) to the Glycohemoglobin result by specifying which result go to which test. You will still need to specify the test add, but the result printed will be linked to that test.



Select **Result?**
Select **Add Line**
Select **Add Column**
Select **Test** and then **Test Name**. The **Index** box should contain the name or code of the first test you want printed.
Select OK
Select **Add Column**
Select **Result** and then **Result Value**. The **Index** box should contain the name or code of the first test you want printed.

Repeat the above for as many tests you want the summary to print.

Two final areas we need to look at; **Print Options** and **Layout Test By:**

Print Options

This will customize your report yet further, what is printed, how it is printed.

Size	**You can print at either 10 or 12pt.**
Separator:	**You can separate the patients with a blank line, dashes, a single line or a double line.**
Abnormal Results only	**Will print only the abnormals.**
Summary Only	**(must also check Statistics) As is says – summary only. This will not list the header, patients or the results, just totals.**
Statistics	**This can be used alone. It will print out the patient and the results**
Separate Pages	**This will print a separate page for each patient.**
Combine Patients	**If a patient has more than one accession, it will be combines so that patient is only printed once. To ensure that all the accession for one patient is listed, under "Sequence for Reporting . . ." choose Patient Name or Patient ID. All the results will then be printed under the patient's name.**
Keep Accessions Together	**This will keep all accession together much like "Keep groups together" in the result form.**

Layout Test By:

There are two ways of handling the tests: You can lay them out (or print them) by test name (default) or by a sequence number. If you choose sequence, the column box will have #1, #2, #3 etc instead of the test names. This may be necessary for restricted tests such as HIV or HEPATITIS. Also, and more importantly, it will pack the tests present for a given accession so that #3 is the third test, in list sequence, that is actually present. If you use this, it will put the empty boxes at the back of the list.

Turn Around Time Report

The Turn Around Time (TAT) is an interval between two designated points in the processing of a test. It is used in a clinical setting to measure the efficiency of the laboratory. The actual time value of this time interval is compared to a target time that is placed on the individual test or globally set in SchuyLab, and a report is generated to show how frequently this target is achieved. The definition of the designated beginning and ending points is fluid, and may change within a facility as well as between facilities. It is generally used by a laboratory for two purposes:

1. The lab manager uses this report to troubleshoot the internal processes of the laboratory, generally the 'analytical' phase of testing. She compiles statistics on the performance of tests and looks for bottlenecks and processing problems.

2. Someone outside the lab, a doctor or administrator, asks for a TAT report on a specific test or for a particular department. Usually this report includes pre- and post-analytical time, and can even be a 'brain-to-brain' report that includes intangibles such as the time it took for a doctor to get around to reading the results.

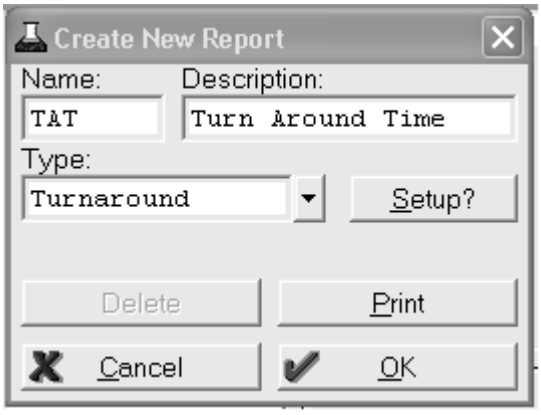
SchuyLab's TAT is setup so that it can be used for either of these purposes (as far as possible; we don't have the telepathy module written yet). Our default setup is to the analytical perspective, and it is best that the report be initially configured in that manner. SchuyLab provides a way of adding a 'fudge factor' for pre- and post-analytical time that is then added to the basic analytical TAT report.

Let me begin with a description of how to set up the TAT report for the analytical of laboratory testing. I will then show you how to add on time for the other phases. You may, of course, elect to include either or both the pre- and post- analytical phases in your default setup – SchuyLab will let you do this – but once you understand how the fields are used, you can proceed to customize it yourself.

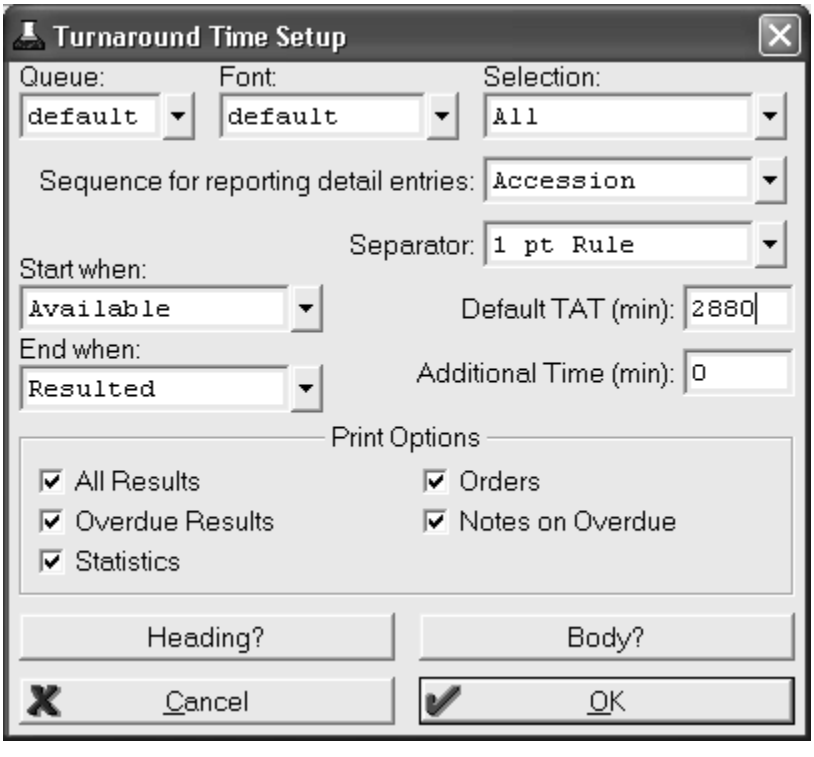
Setup of TAT

The Turn Around Time report is first constructed in the Reports icon (F8, Tools ->Setup -> Report Setup -> Reports). Select "New Report" and pull down the "Type" list to the new 'Turnaround' format. Please note: You can create several versions of

the TAT report, each for its own purpose and with its own parameters. As with any report created in this Reports icon, the TAT report is accessed for daily use through the Miscellaneous Reports icon in F6, Print.



Select Setup and you will see a unique set of options for the TAT report.



The "Queue" and "Font" you are familiar with from other SchuyLab reports; they may be left on 'default' or set for your lab's needs.

The "Selection" dropdown list enables you to look at just a subset of this report. For instance, you could run the TAT report for the accessions drawn by a particular phlebotomist, or for only the ER location, or just for Dr. Brown's patients.
The "Sequence for detail entries" dropdown box allows you some 'fine tuning' as to whether the entries under your primary sort criteria are listed in accession order, by patient ID, or alphabetically by patient name.
The "Separator" option allows some graphic formatting for how your report appears.

The heart of the TAT report are the fields that are marked "Start when" "End when" and "Default TAT (min)". There are many points at which you could begin measuring a turn around time, only some of which are available to SchuyLab. Most of the entries in the "Start…" and "End…" drop-down lists are self explanatory. Select an entry for each of these fields to define the limits of your TAT report.

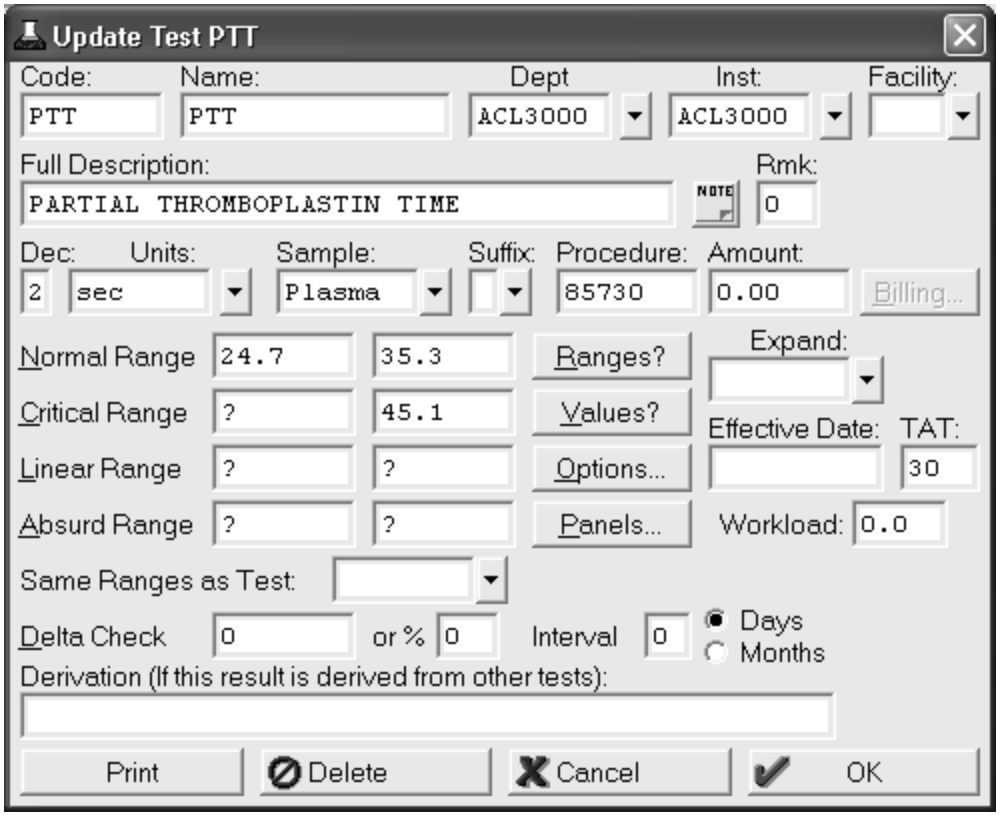
There is one entry labeled 'Available' in the "Start when" list that is not self-explanatory: There is no explicit time value in SchuyLab, or in medical literature per se, that defines the 'Available' time; this is a concept unique to SchuyLab – but one that you may find useful. If you have calculated turn around times in the past, you are aware that the normal workflow of the laboratory is "ordered -> drawn -> received -> processed -> resulted". There are situations, however, where this sequence is not accurate. An add-on test is drawn and received before it is ordered, for example and an order placed through an EMR or HIS is received by the LIS, then a phlebotomist is sent to draw it. How do you then use any of these criteria to mark the starting point of your TAT? That's where 'Available' comes in. 'Available' means that the specimen has been ordered *and* drawn *and* received in the lab. In other words, all of the criteria have been met that are prerequisites for actually running the test. If you are using the TAT to measure the *analytical phase* of laboratory work, then 'Available' marks the beginning of that phase.

The "Default TAT…" field is a good field to use initially, if you don't know what your TAT's are, and are trying to establish a reasonable TAT for your tests. It allows you to put one time into SchuyLab, without having to enter/ change the times in of the individual tests. Obviously, this field will be the dominant field in the TAT for a reference laboratory, where their promotional literature states something to the effect that, "We guarantee that 80% of our tests will be reported within 24 hrs of their receipt in our lab." In that case, there is no real need to distinguish among the various tests – they just need to be done in one day. The entry in this field must be in **minutes**. This field is used for calculation only if there is no entry placed in the TAT field on an individual test (more on that later).

The "Additional Time…" field is another Schuyler House innovation. You have just set up the TAT's on 200 individual tests to mark the analytical phase of testing. You go to a meeting, and a doctor turns to you and says, "I'd be curious to see what the turn around time is from the time of ordering on the charts." Do you have to go back into SchuyLab and retype all of those individual TAT's ? No. You think to yourself, "Hmm. The interval between the time the doctor orders a test and the time the

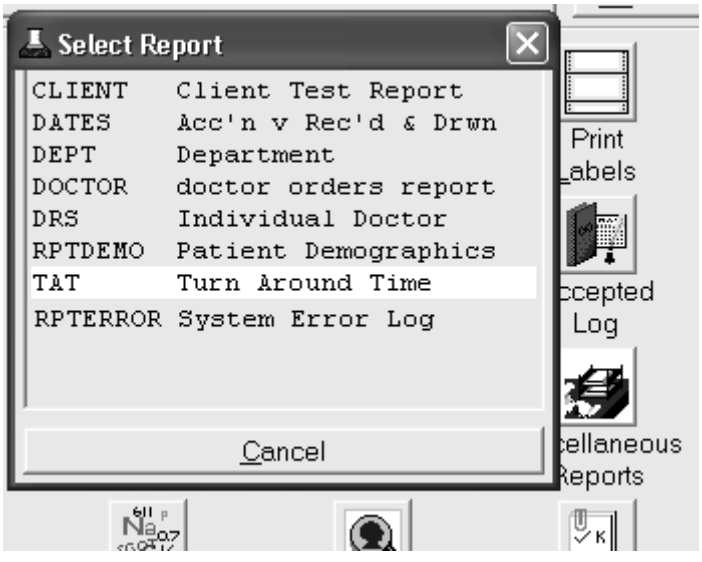
specimen gets to the lab is going to be about the same for all tests." You talk to some of the nurses on the wards and decide that it is about 40 minutes. You put "40" into the "Additional Time" field and SchuyLab happily adds 40 minutes to all of the times you have put in the individual tests (or in the default). You can then run your report for the curious doctor.

Setup TAT on individual tests:
On each individual test, the TAT (once again, in minutes) can be entered in the appropriate field. From then on, SchuyLab uses that individual time for the TAT of that test, rather than the default time that is entered in the setup of the report.

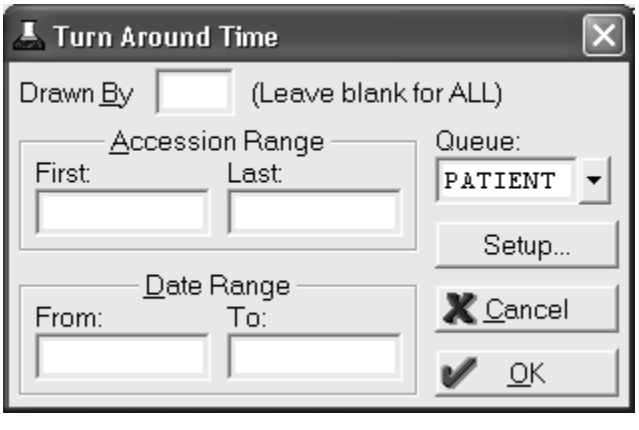


Daily Use

As with all reports created in the Reports icon, the TAT report(s) appear in the list under the Miscellaneous Reports.



Select that report from the list and enter the range of dates or accession numbers for your report. You may have an additional field, depending on the criteria by which you are sorting the report (in the "Selection" list mentioned above). In the example below, I can enter the initials of a particular phlebotomist.



Selecting the Setup button takes you to the setup menu shown above, and allows you to modify the report accordingly.

To run this report on a daily basis, simply enter the appropriate range and criteria and select "OK".

Draw List

The Draw List feature has been a part of SchuyLab for many years now, but not many places make use of it or are even aware of its capabilities. What does the Draw List do?

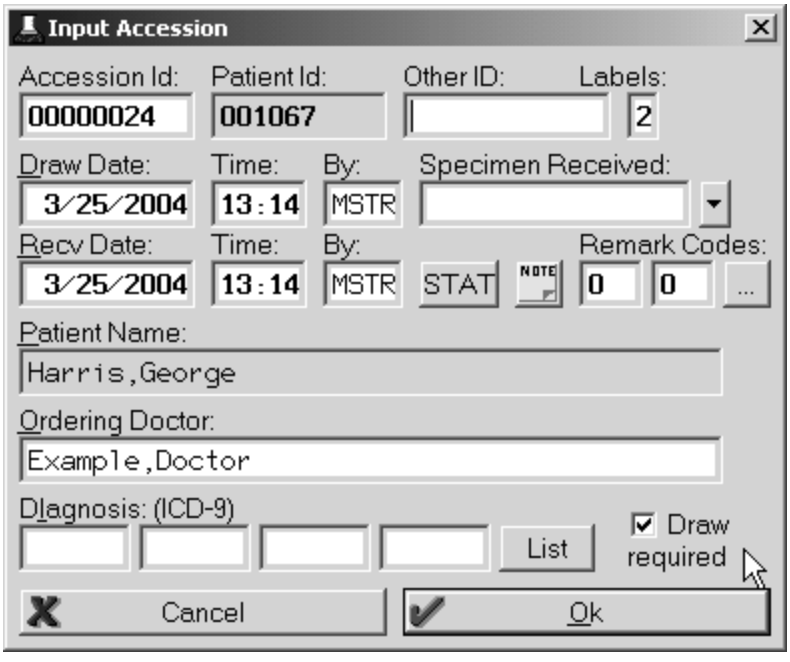
In Hospitals, Medical Groups, and even some Physician Offices, a Patient may be admitted for a prolonged stay. The Draw List allows the staff to Accession a group of Specimens, without actually drawing the sample, and dating them for the day after (or days after, or hours after) the time they were entered in SchuyLab. You can then print a list of every Patient who needs to have blood drawn, as well as what tests they are going to have performed on them.

For instance, at the Example Medical Group, George Harris has been admitted to the Critical Care Ward following a heart attack. After surgery, the doctor wants to monitor his stability and has several Lab tests performed on the patient. Even though the blood hasn't been collected yet, the lab staff orders the specimen and marks it to be drawn that night. When the Lab Staff arrive that evening, they print out a copy of the Draw List for each ward, so they know which patients need to have blood drawn and what type of samples they are going to draw. In addition, their barcode printer prints out a series of labels for each specimen on their list, so as they are collecting, they can label the samples immediately. When they return to the Lab, they process the samples, and prepare them to be run.

So how do you make use of this tool?

Well, first make sure that your lab is configured for **Undrawn Accessions** (See **Optional Processes** in Sec.8, Managerial Functions to set this up).

When you are ordering tests for a sample that has not been collected, you will follow a slightly different procedure than usual. Once you have reached the **Patient Processing** screen, click **Order Tests**.



On the Input Specimen window, you will now see a 'Draw required' checkbox. If this is a sample that's to be drawn at a future time, place a check in this box. Under the 'Draw Date and Time' fields, enter the date and time the specimen should be collected. Under the 'Specimen Received' field, you can list what samples are to be drawn. This will make the phlebotomist's job easier. Click OK and order the tests as you normally would.

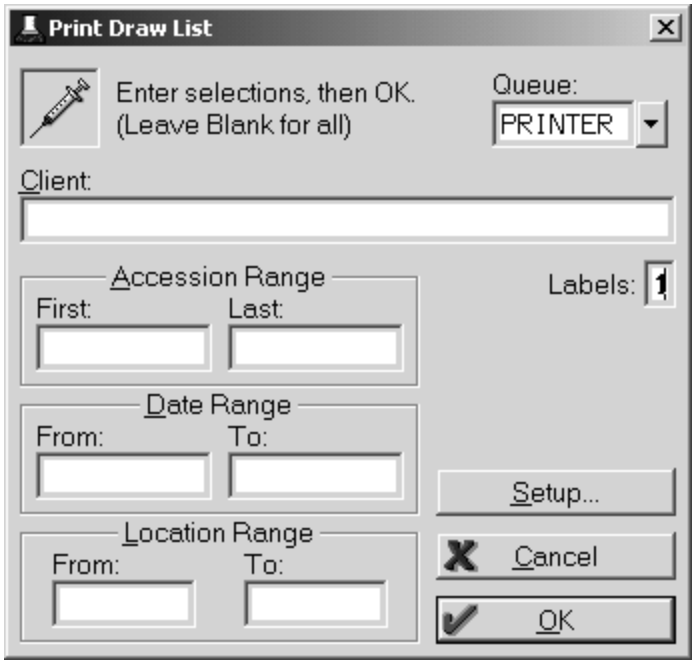
- The 'Recv Date and Time' fields may not be set to be prior to the 'Draw Date and Time'. You can, however, leave the date and time blank for a Draw required accession, as well as the 'By' field.

Checking the 'Draw required' checkbox tells SchuyLab to put this specimen on the Draw List. However, as long as 'Draw required' is checked on this specimen, it will not be considered an active speciment: it won't print on your Worksheets (because it hasn't even been collected yet), the order won't transmit across an instrument interface, etc. See **Processing Draw List Specimens** below for how to finish accessioning these specimens.

Printing Your Draw List

Go to **F6: Print**

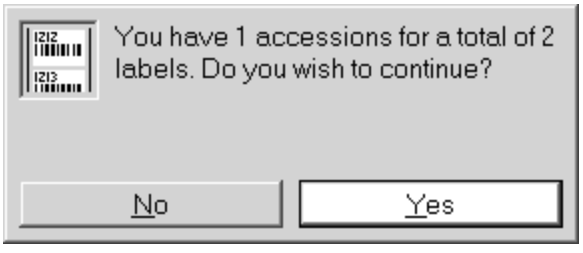
Draw List



You will now see the **Print Draw List** window. You can sort the information by four different criteria.

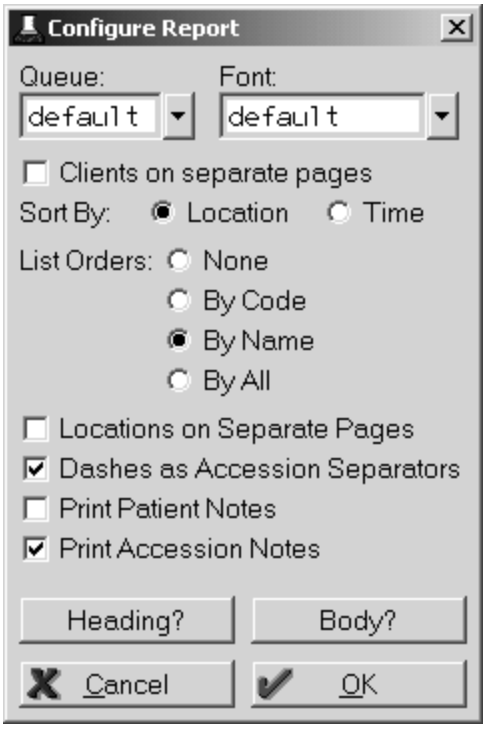
Client	**Allows you to pull up any Draw Required sample by Client's name (i.e. Goodwill Retirement Home).**
Accession Range	**Allows you to pull up any Draw Required sample with in that specimen number range.**
Date Range	**Will print a list of all Draw Required specimen who's Draw Date falls during that time frame.**
Location Range	**Allows you to select all Draw Required specimens whose Location falls alphabetically between the entered Locations. Locations are defined in F8, Tools; Report Setup; Location. Locations are setup by your lab and defined for your own use. For example, if you type in CRITIC and ONC (and you have these locations set up as such), this will print a list of every Draw Required specimen from CRITIC (Critical Ward), ER (Emergency Room), GERI (Geriatric Ward), and ONC (Oncology Group). However, if you leave all of these fields blank, it will print out every Draw Required specimen that is in your system**

As an example, let us print a list of all the Draw Required samples from the Critical Ward that are scheduled to be drawn on 3/25/2004. Our date range is 032504 to 032504 and the location is CRITIC to CRITIC. We can enter "2" in the **Labels:** field, which will print out 2 labels for every specimen on that Draw List (if you have a barcode printer). That way the phlebotomist can mark each specimen as they collect it. Once you click **OK**, a confirmation window will appear:



Click **Yes**, and your Draw List Report and its barcodes will begin to print.

On the Print Draw List screen, you will also notice the **Setup…** button. This allows you to further configure your report to fit your needs.



Queue: **Allows you to change the default printer for this report**

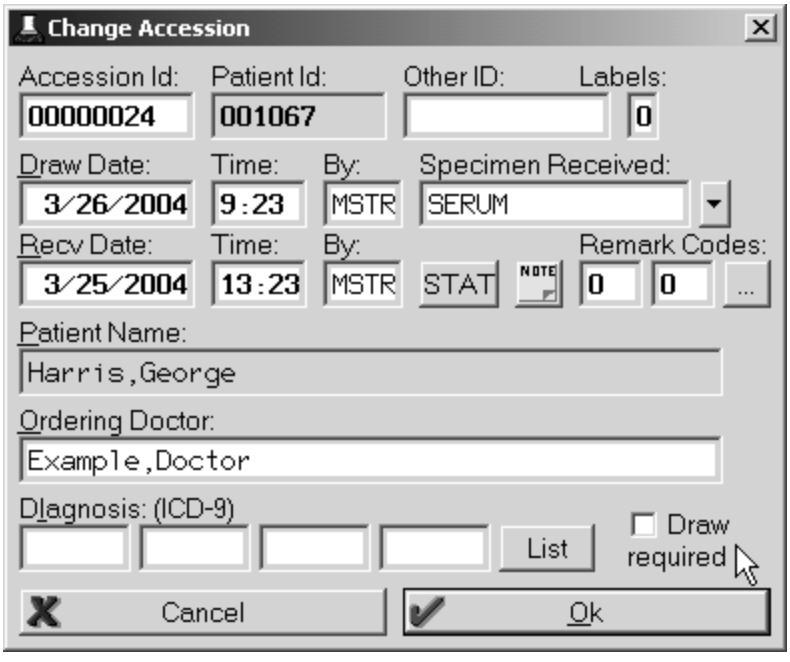
Font:	**Allows you to change the standard font type used**
Sort By:	**Allows you to organize your samples, either grouping all the draws from one Location together, or listing them by their entered Draw Date and Time.**
List Orders:	**Defines whether a list of the Patient's orders will appear and in what format it will be displayed.** **None will just print a list of the demographics information for the accession.** **By Code will also include a list of the Order Codes. By Name will print the Order Name.** **By All will print the Order Code, Name, and Full Description of each procedure.**
Locations on Separate Pages	**Will divide all the orders for each location (as you've set them up), on their own page. This option can be used to easily print out all the Draw Lists for different Units at the same time.**
Dashes as Accession Separators	**Will place a line of dashes between each specimen, making the report easier to read.**
Print Patient Notes	**Will also include any Notes attached to the Patient.**
Print Accession Notes	**Will include any Notes attached to the Specimen.**

The **Heading?** and **Body?** Buttons can be used to further customize the demographics information of your Draw List.

Processing Draw List Specimens

Once you've collected your samples from your Draw List, you will need to process them in SchuyLab. This is a fairly simple task, but is necessary to help keep your system running quick and efficiently.

First, you will need to look up the undrawn specimens in SchuyLab. The simplest method for doing this is to select **F3: Specimen** and type in the Specimen ID number (although you can also select **List Active**, or look up the Patient through **F2: Patient**). Once you have reached the **Patient Processing** screen, click **Change Spec. info**.



Under the **Change Accession** window, you will want to update the **Draw Date** and **Time** so they accurately reflect when the sample was collected. Also, you will need to remove the check mark from **Draw Required**. This will allow the specimen to appear on your Worksheets. Click **Ok**, and repeat the process for the next specimen.

- If the 'Recv Date and Time' fields had been left blank when the specimen was Accessioned, unchecking the 'Draw required' checkbox will set those fields to the current date and time. Likewise, if the 'By' field had been left blank, unchecking the 'Draw required' checkbox will insert the current user's initials into that field. In other words, when you clear the 'Draw required' checkbox, SchuyLab records that fact.

On occasion, the phlebotomist will run across a patient on the Draw List from whom they are unable to collect the samples. This can happen for a wide variety of reasons: the patient is uncooperative; they have checked out; they are no longer at the Location listed on the **Draw List Report**; etc. In this instance, they still need to be processed in SchuyLab. This is very important as leaving large quantities of unresulted specimens in your system will dramatically slow down building your Worksheets and other standard SchuyLab functions. There are several ways you can handle this.

The easiest method is to simply delete that specimen out of your system. To do this, you will need to look up the sample as described above and you must have the security clearance. From the **Patient Processing** screen, you then click **Delete Specimen**. The message, "Specimen 00000006 has tests! Delete it anyway?" will appear. Click **Yes** and the sample will be deleted.

However, this option can cause potential problems when the Doctor calls the next day to find out what happened with George Harris' results, and the lab no longer has any record of the tests having been ordered.

Another option that would amend this issue would be to keep the specimen number in your system, delete the ordered tests and attach a note stating "Unable to collect sample. No results to be reported." or something similar. Note Codes or Remark Codes can be configured to make this very easy (See Sec. 8, Managerial Functions to find out how to set these up). Once the sample is annotated, click Ok.

You will want to remove the orders from this specimen (this is the most important part of processing the Accessions you were unable to collect). You can do this by clicking **Order Tests** and unordering all the procedures, or you can go into **Enter Results** and enter **QNS** for each test. **QNS** is a value that can be entered for any test, but also prevents the procedure from being billed automatically. The first option would not print a copy of the report automatically. The second option would print out the report with the results listed as QNS either automatically or when you do your Batch Print.

Printer Setup

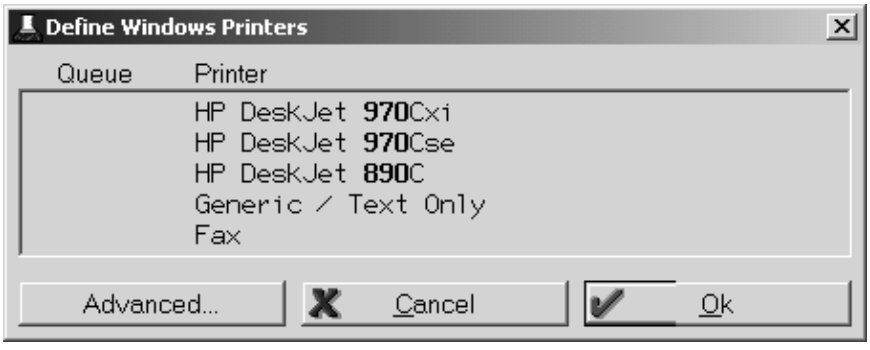
Printer Setup is hardware-specific. Everything else that you've dealt with so far has modified your LIS as a whole. If you set up a test while you were sitting at the PC in Hematology, when you went into Chemistry, the test was there. If you changed the date on the server, made a worksheet, or entered a new lot number of QC, your action applied to the entire system. Printer Setup applies to the PC you are sitting at, and the printer connected to it.

In general, you shouldn't have to change Printer Setup unless you install a new printer.

To Access the Setup

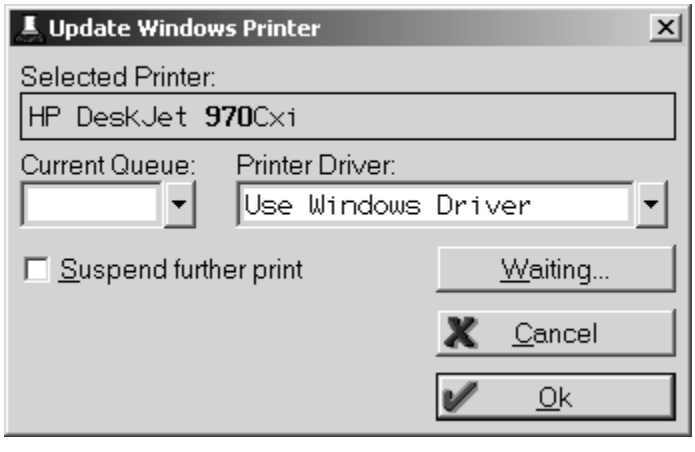
Select **F8. Tools.**
Select **Printer Setup.**

SchuyLab displays the Define Windows Printers box.



To Select a Printer Model

The box above contains all the printer models compatible with SchuyLab and that have been installed in the Windows program of your computer. Select the name of your printer model (i.e. HP DeskJet 970Cxi) by clinking on it with your curser.



The selected model name appears in the Update Windows Printer box. Select the correct print queue for the station the printer is attached to, such as "Printer" and select OK. This is now the default printer for this SchuyLab station and a green dot will appear next to the printer name.

To Change the Current Queue

If yours is a single station, this queue should be set to PRINTER.

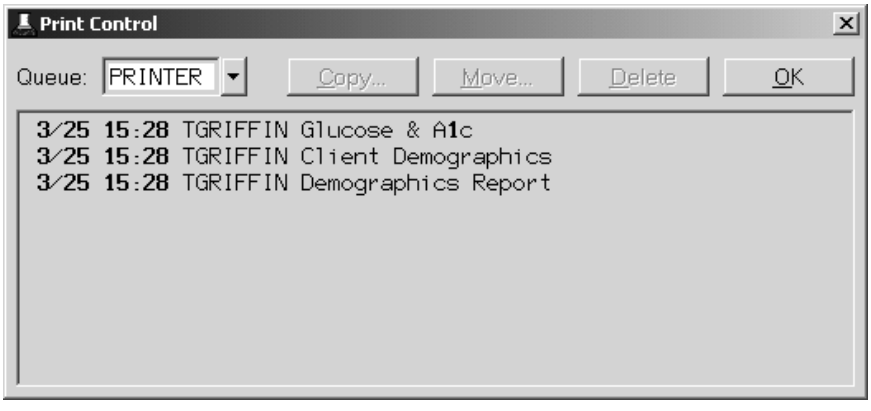
If your system is on a network, you may have as many printers (and printing queues) as you have workstations to support them. Each printer is given its own queue; each printer is driven by its own workstation. The most common setup involves two printing queues: PATIENT, for patient reports (often on pre-printed forms), and

PRINTER, for all the other print jobs (e.g., worksheets, logs, and other internal reports).

On the workstation attached to the printer used for patient reports, the queue in the *Update Windows Printer* box should be set to PATIENT. On the workstation attached to the printer used for other print jobs, the queue in the *Update Windows Printer* box should be set to PRINTER.

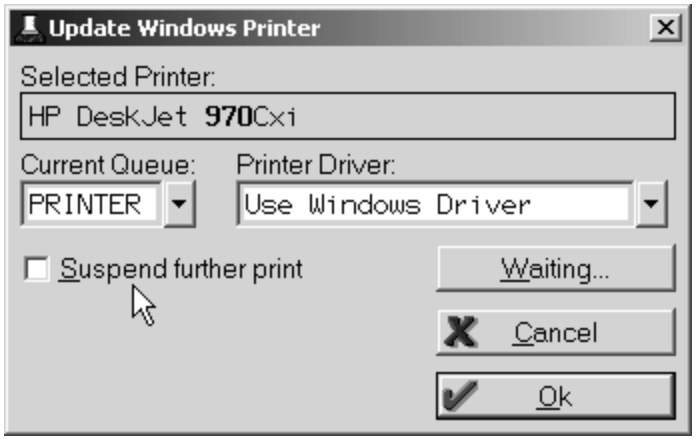
When the current station is set to the appropriate queue, select **OK.**

Waiting: To see a list of the print jobs pending on this printer (or, more precisely, this printing queue), select **Waiting.** SchuyLab displays the Print Control box.



As with the **Print Control** icon in the Printing menu screen, this box allows you to view, move, or delete the print jobs on this printing queue. (If you have this many print jobs pending, you've probably got something wrong with your printing system. See the next item.) When you're done with the Print Control box, select **OK.**

Suspend Further Print: This doesn't act to suspend a printing job. Rather, if a printing job is suspended for some other reason (e.g., the printer has run out of paper), SchuyLab puts a check mark in this box.

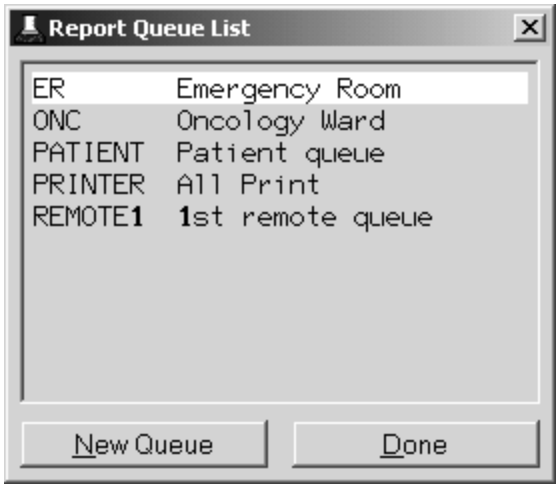


Once printing has been suspended on a queue, no further jobs on that queue will print until you remove the "suspend" flag. To do this, remove the check mark by clicking it with the mouse, then select **Ok.** The station will begin to print the pending items that were seen through the **Waiting** button.

Report Queues

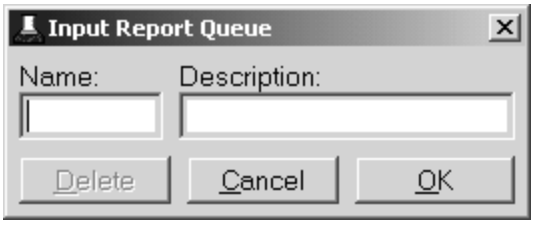
As mentioned above, SchuyLab's printing functions are based on *printing queues:* holding areas for print jobs, each queue assigned to a specific printer. If your system has multiple printers (including remote printers and faxes), then you will need to define report queues to manage them.

To define or update printing queues:
From the Report Setup menu screen, select **Report Queues.**
SchuyLab displays the Report Queue List box.



To Create a New Report Queue

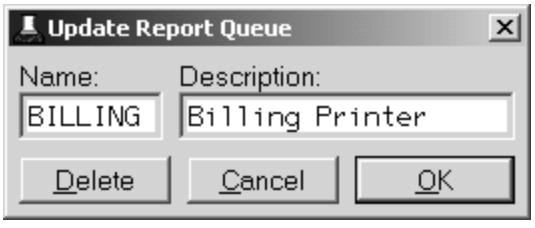
1. Select **New Queue.** SchuyLab displays the Input Report Queue box.



2. In the Name field, type the name of the new queue (up to eight characters). The name could be based on the physical location of the printer serving that queue (particularly for sites with Remote Printing or Faxing), or it could be based on the type of report done through that queue (e.g., PATIENT, BILLING, &c).
3. In the Description field, type a more complete description of the printer queue.
4. Select **OK.** SchuyLab returns you to the Report Location List box.
5. To add another heading, repeat the above steps. When you are finished, select **Done.**

To Update a Report Queue

1. From the Report Queue List box, select the queue you wish to update. SchuyLab displays the Update Report Queue box.



2. Make the appropriate changes to the fields.
3. If you wish to delete the queue entirely, select **Delete.** Otherwise.....
4. Select **OK.** SchuyLab returns you to the Report Queue List box.
5. To update another location, repeat the above steps. When you are finished, select **Done.**

Security in SchuyLab

More and more today, it is important to know who has ordered what tests for a patient, who resulted and accepted the test results and who may have deleted or changed a test that was ordered. It is even more important that only those authorized to see patient information can access it, especially through your computer and through SchuyLab.

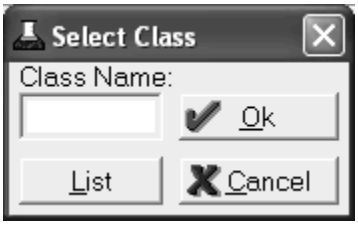
SchuyLab is designed so that classes can be setup to only perform certain jobs, access only certain information or make changes in the setup of SchuyLab. These classes are then tied to the lab technician, doctor, nurse or other individual that may use SchuyLab by their log on information.

Set Up

Select **F8. Tools.**
Select **Security Levels.**

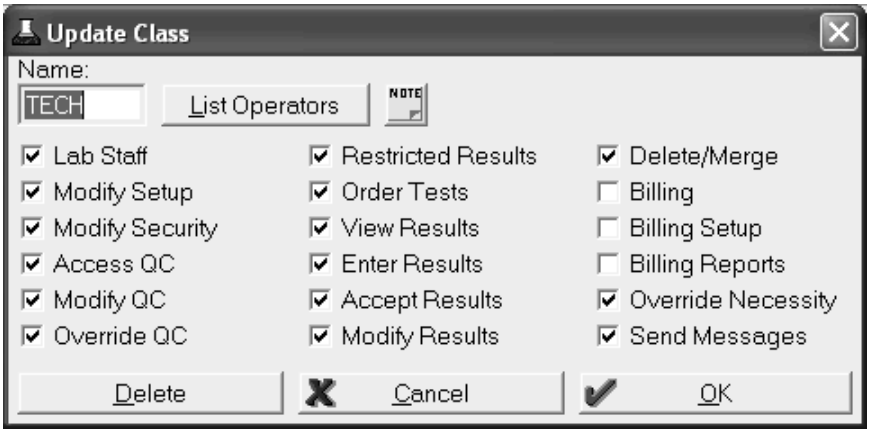
You then have two choices; **Operator and** **Class. Let's look at the class setup first.**

The first box that pops up is Select Class. In the box under Class Name, you can type in the class name (i.e. MANAGER, NURSE, TECH, ETC.) then select Ok, or



select the list button to show the list of classes that are already in your list.

By clicking on one of the classes (i.e. TECH), we can see what that class is able to access.



By checking the various boxes, we can set the security level for each tech, class of tech (can they accept results? Do you want them to modify tests and panels, etc?) or even the doctors and nurses (view results only?). One thing to know, any Lab staff (techs, manager, processors, etc.) should have the box labeled "Lab Staff" checked.

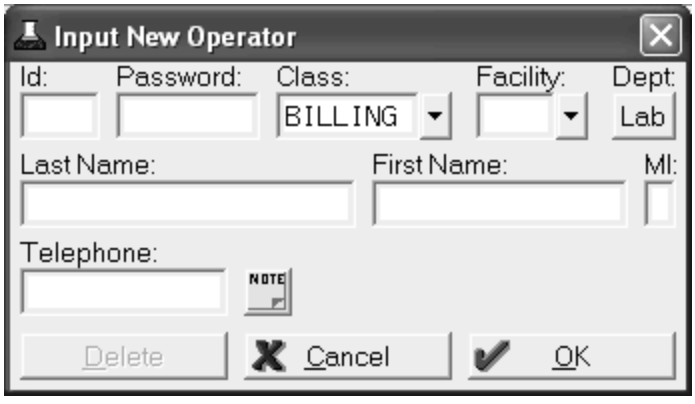
By clicking on the box labeled "List Operator" we can see just who the TECHs are.

Adding a New Operator

There are two different ways to add a person to the security screen. The most common way is through the Operator button.

Select **F8. Tools.**
Select **Security Levels.**
Select **Operator**

In the Select Operator box, we can enter the operator's ID (an ID is up to 4 characters) or select List. When we select List, we see a list of the people who already have a security level. To enter a new person, select New Operator.



Id **Your Id is something to identify you on any reports that may be looked at. This can be up to 4 characters, alpha-numeric only.**

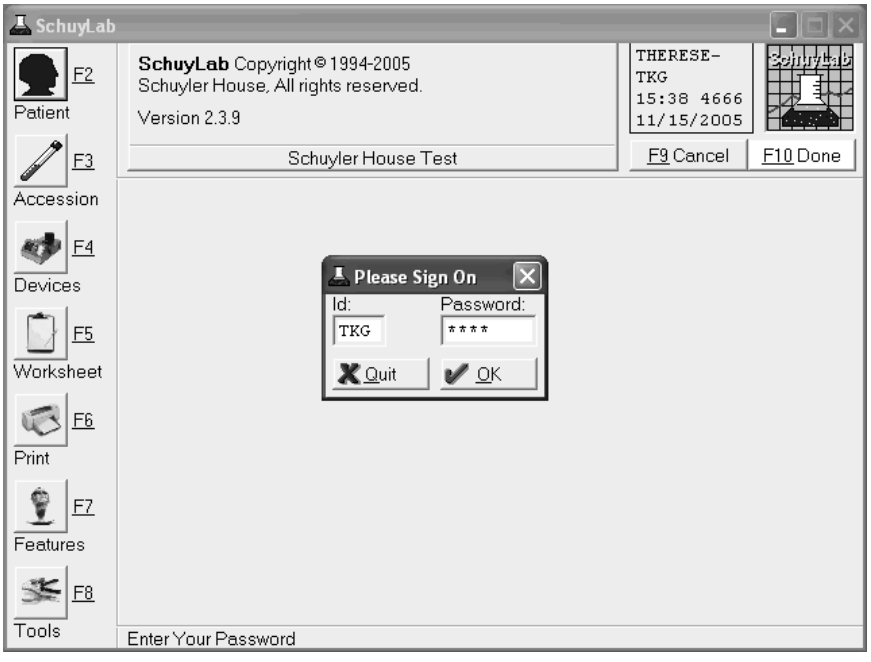
Password	**This can be up to 8 characters, alpha-numeric only and only something you (and possibly the manager of the lab) will know. You do not have to change your password unless you want to (or you forget it).**
Class	**This is the class or level of security you have**
Facility	**This is used for Multi-Facility sites to limit Which patient information you can see.**
Last, First name	**So just who is this person signed in as "XXX" ?**
Telephone	**Should something happen and the manager need to contact you.**
Note Pad	**Works the same as all the others, although this should be a note about this employee, such as, "can't work 3rd Friday of the month".**

When you have filled in all the fields, select OK and SchuyLab will ask you to verify your password. If you enter it in correctly, you are in the system. If you don't enter it correctly, SchuyLab will ask you to verify it again (you'd be surprised how many people can forget it so quickly). If you put in the ID first, the above box will appear and you can continue filling in the boxes. When you select OK and SchuyLab will ask you to verify your password.

Changing your password

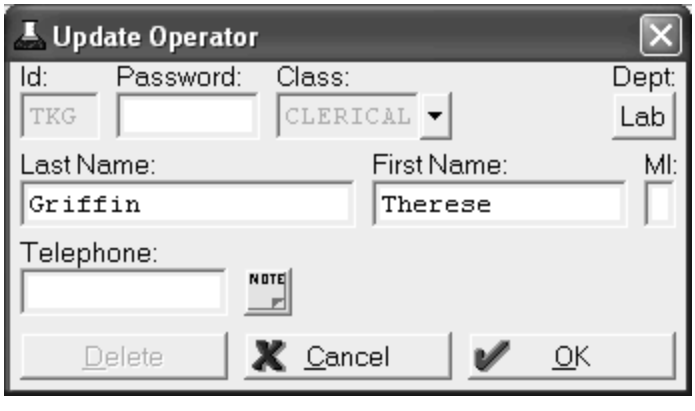
SchuyLab now has the capability of generating new passwords without having to delete the Operator. Now, any person who presently has a password in SchuyLab can change their own.

At the sign in screen, sign in as you usually do using your old password.



Select OK;
Select F8, Tools;
Select Security Levels;

If you do not have the security level to go into this section, a box will pop up allowing you to change your password.



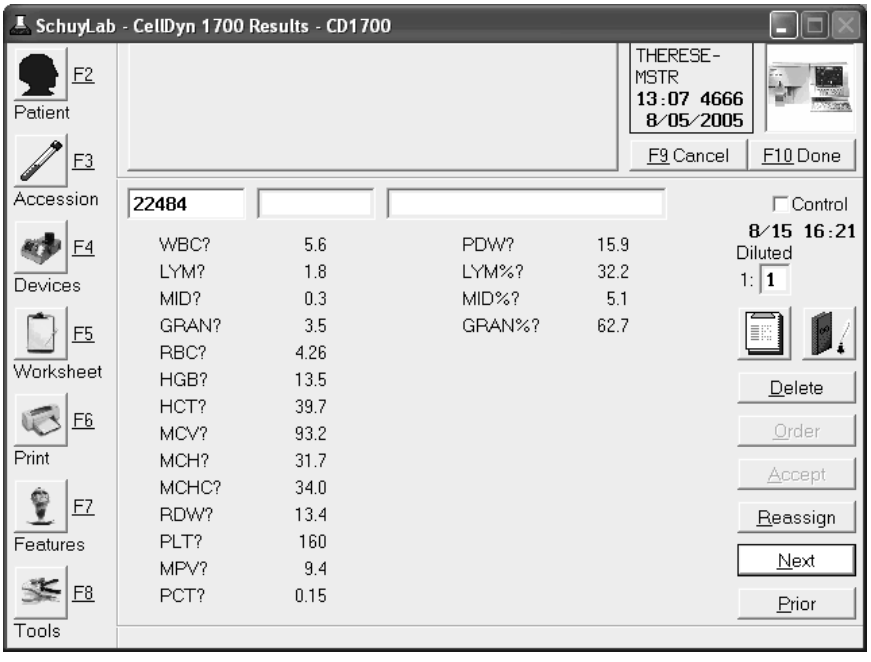
In the password box, type in your new password and select OK. SchuyLab will ask you to verify your password (just like when you first set up your password)

After your select OK again, you can continue to use SchuyLab, there is no need to sign in again. Just remember the next time you do sign in to SchuyLab to use your new password.

The Online Instrument Interface

The SchuyLab system will be ready to use when installation is complete. Part of the installation process involves configuring SchuyLab's device interface: the portion of the program that reads the data coming from the lab instrument and translates it to a readable format on SchuyLab. For normal operation, you should never need to change the device interface. But instrument manufacturers do change their products, and it may someday be important for you to understand the device interface and how it works.

Let's pretend, for the moment, that you've gotten a new CBC analyzer and you've just attached it to your SchuyLab system. If you were to run a sample, and transmit the results to SchuyLab, they'd appear in the **F4. Devices** screen looking something like this:



The test codes are as they have been transmitted from the instrument. SchuyLab doesn't recognize any of them, so it's appended a question mark to each test code. (That is, the CBC machine transmitted "WBC", and SchuyLab displays it as "WBC?" to show that it's confused.) Under these conditions, it's impossible to match the test results to a specific patient, or accept the values.

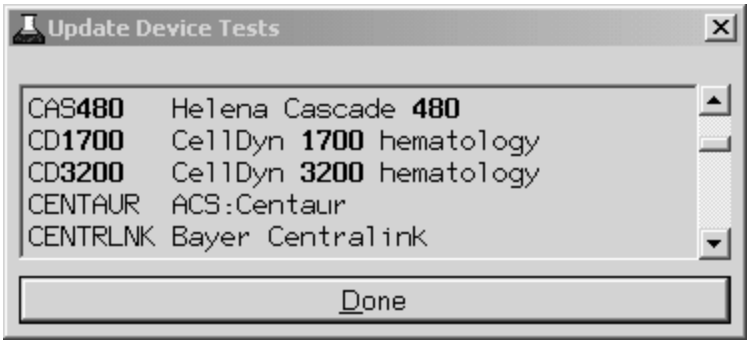
SchuyLab uses a list of aliases for each online instrument -- essentially a translation table -- to convert the transmitted test codes into SchuyLab-defined test codes. This list is generated through the Device Setup icon.

Even if the transmitted test codes are the same as SchuyLab's codes (in the example above, the WBC test has the same code on the instrument as in SchuyLab), the alias has to be established.

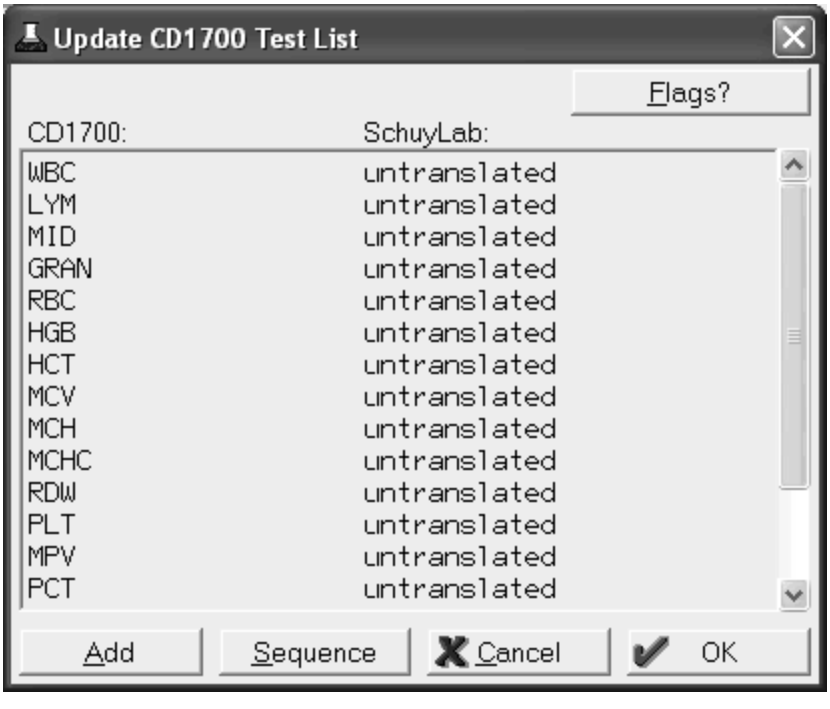
Configuring the Device Interface

Select **F8. Tools.**
Select **Set-Up.**
Select **Device Setup.**

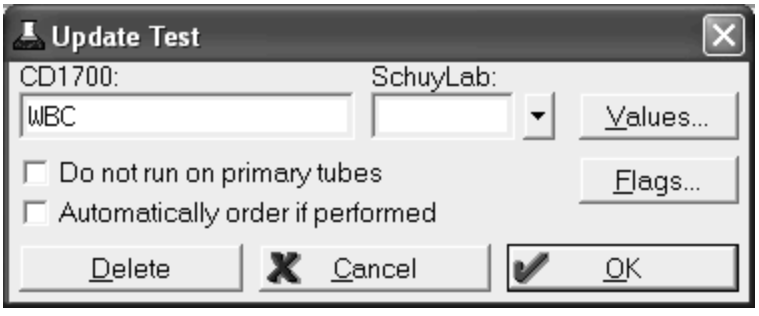
SchuyLab displays the Update Device Tests box.



The Update Device Tests box lists all the devices interfaced with your SchuyLab system. Click the mouse on the one you want to work on. SchuyLab displays the Update [Instrument] Test List box.



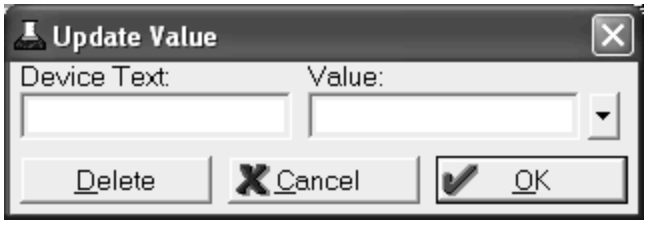
The Update [Instrument] Test List box lists all the tests for which you will need to set up aliases. This list is made when you run either a QC for this instrument, or a patient's specimen. To set up the tests, select one of the tests (we will select the WBC) and the following box opens;



Instrument Name — **This is the name of the test as it is sent over from the instrument.**

SchuyLab — **This is the name of test as it appears in the SchuyLab test list. It may match or be different (i.e. CREA and CREAT or WBC and WBC).**

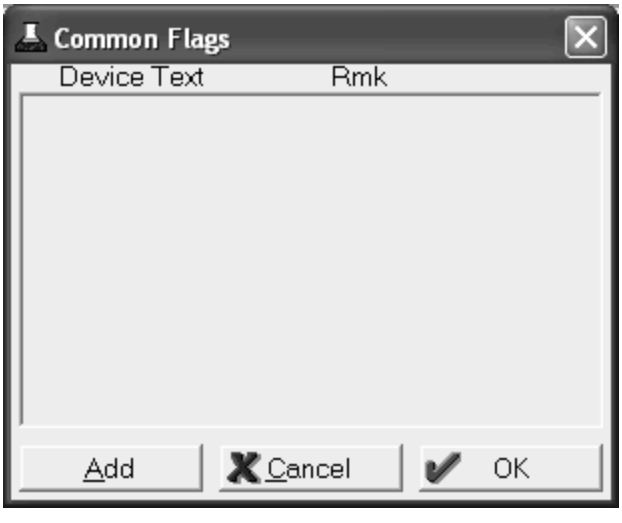
Values — **With some instruments, the results sent over may be different than you wish reported. For example, in some UA instruments, they will send over ++++ and you may want it to print out as 4+.**



Select the Values button and click on the Add button. In the above example you would add "++++" in the Device Text section and "4+" under the Value section. Continuing adding all the values you need for that specific test.

Flags — **These would be flags that the instrument sends over with a result. You can set up these flags with the appropriate message or to be ignored. The user's manual for your instrument can tell you what these flags mean. There are two places to set the flags. As in the above WBC box, these flags would be test specific**

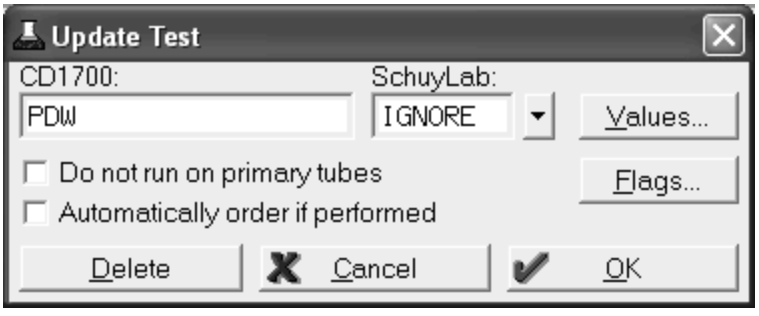
Or if you select the flag button on the first box of the test translation table, these are flags common to all of the tests done by this instrument.



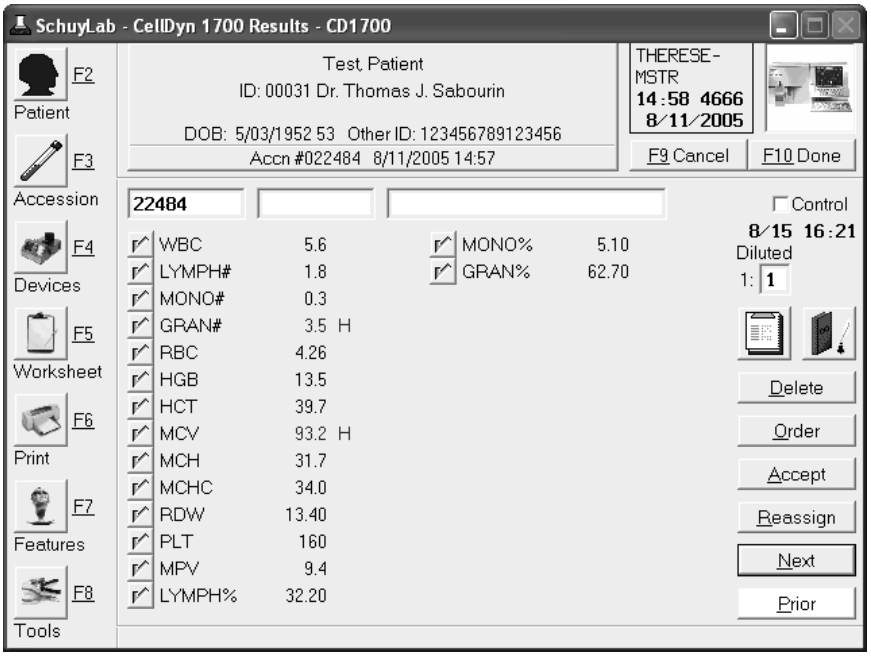
Do not run on primary tubes — **There are some tests (such as HDL) that can not be run with the other test. In that case, you will need to check this box.**

Automatically order if performed — **More and more newer instruments run a variety of test automatically. If there was anything to report, the instrument would then send over the results. When this box is checked, if these tests are reported out, they will be ordered.**

Continue aliasing all the tests you want to result out. Many times there will be tests that you don't report out or the instrument may send over as part of it's programming. These tests will show up every time you run a specimen and although you can just ignore them, let's fix it so they never show up again. In Hematology, most of the time you can ignore PDW, but your instrument will run it and report the result. So in the Update [Instrument] Test List box, select the PDW test.



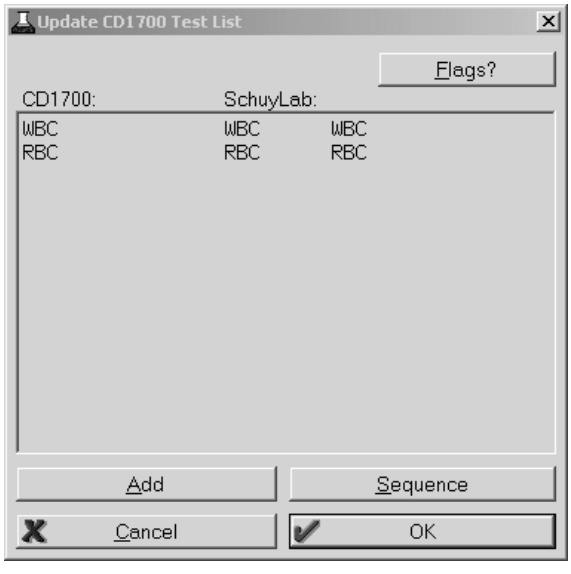
As you can see, under the SchuyLab box, we have typed in "IGNORE". This tells SchuyLab to ignore this test. Now if we were now to return to **F4. Devices** and select the icon for this CBC analyzer, the screen would look like this:



The tests that have been entered through Device Setup no longer have question marks appended. Instead, they have the check boxes that characterize normal operation. Those tests could now be accepted. When all the tests performed by a given instrument have aliases defined through the Device Setup icon, the instrument interface has been configured.

You can also add to the list without running any specimens or QC by selecting the **Add** button. SchuyLab will display the Add Test box.

1. In the [Instrument] field, type in the test code ***exactly*** as it's sent from the instrument. (If you don't remember what that is, go back to the **F4. Devices** screen and select the appropriate instrument icon. SchuyLab will show the test code used by the device, with a question mark added. Be sure not to include the question mark when typing the test code into the Add Test box!)
2. In the SchuyLab field, pull down the list of SchuyLab tests and select the correct test code or type "IGNORE" if you don't want the test to show. (If the SchuyLab test code is identical to the entry in the Device field, you can omit this step; SchuyLab will fill in the field automatically when you select **OK.**)
3. When done, select **OK.** SchuyLab returns to the Update [Instrument] Test List box.
4. Select the **Add** button to add another test to the list; repeat steps 1-3 above.
5. When you've added all the tests performed by that instrument, the Update [Instrument] Test List box will look something like this:



(We've deliberately entered only a few of the tests performed by this CBC analyzer, for purposes of illustration.)

6. Normally, you won't need to worry about the sequence of the tests in the Update [Instrument] Test List box. For most instruments, each test from the instrument will correspond to a single test on SchuyLab, and vice versa. In some special cases, though, you may need to put the tests in a particular sequence. (For instance, your instrument may accept a test labeled "HDL", but transmit results as "HDL2" -- both of which correspond to the test code "HDL" in SchuyLab. In that case, the HDL2 translation line must come last on the list.) To re-sequence the tests, select the **Sequence** button. SchuyLab displays the Test Sequence box. Use the mouse to select the test you want to

move, then click on the spot on the list where you want it to be. When the test list is satisfactorily sequenced, select **Done.**

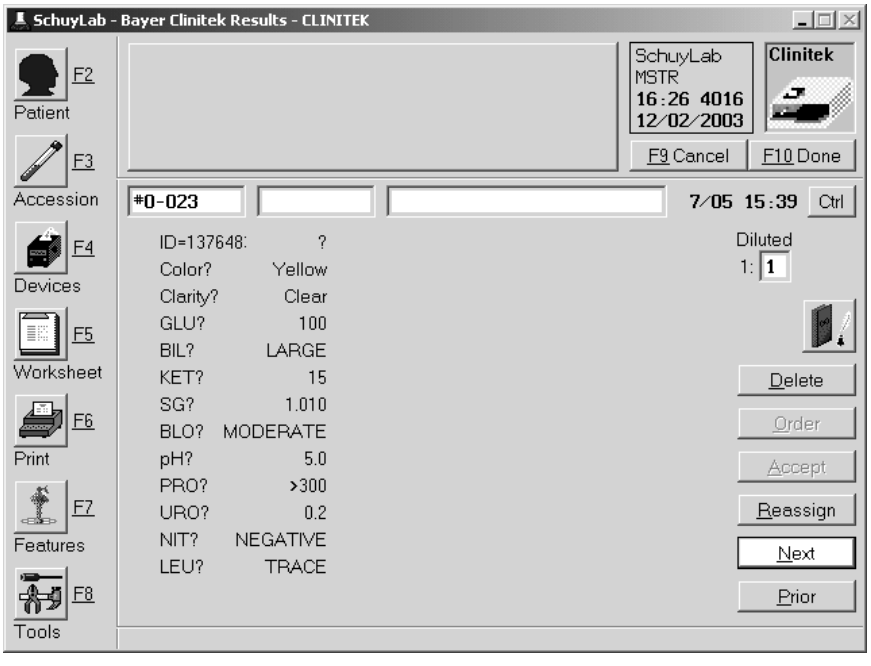
7. When the list is ready, select **OK.** SchuyLab returns to the Update Device Tests box.

Select **Done.**

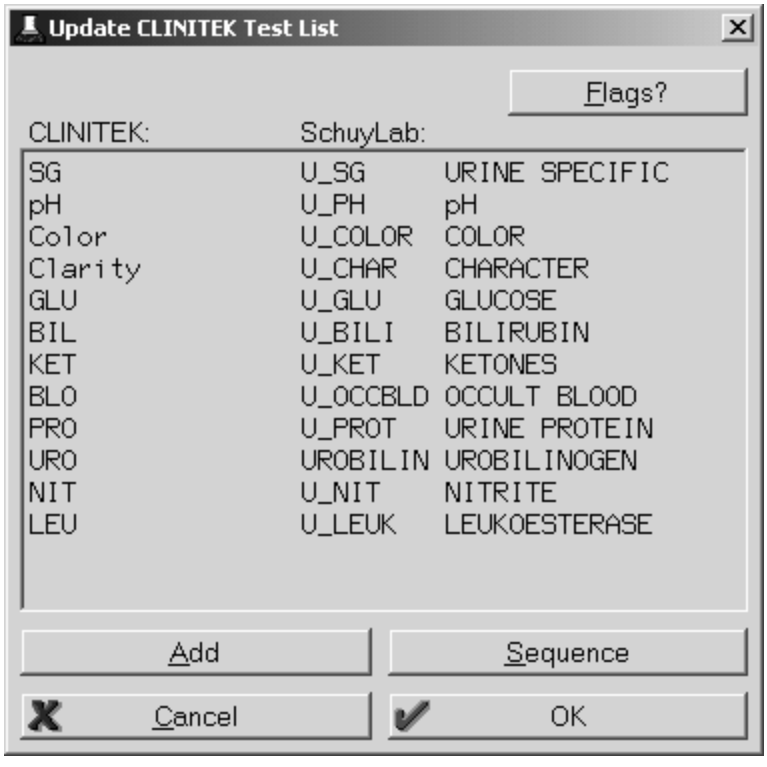
Non-numeric Test Values

The above procedure suffices for most instruments, whose test results are simple numbers ("5.0", "10.32", &c.). Some test results are not simple numbers, however, but words or phrases (for instance, "Yellow", "1+", or "10-20"). Alternatively, you may want SchuyLab to translate the test result from the format the instrument uses to the format ***you*** use -- say, when the instrument says "+++" but you want the result to be "3+" or "Moderate". In either case, a few more steps with the Device Setup icon are necessary.

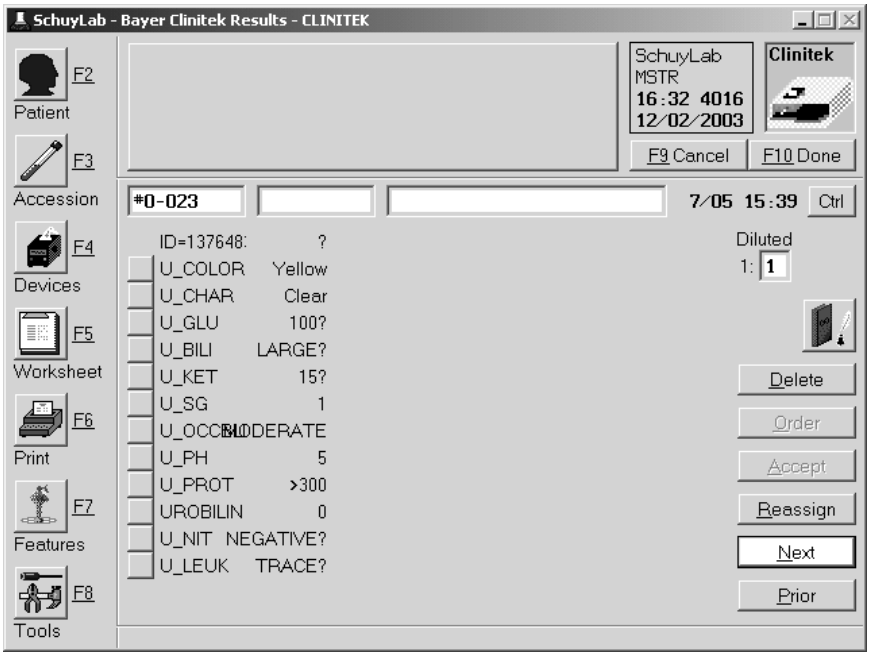
Let's take the case of a urinalysis instrument. Before the alias list is built in Device Setup, the test results sent from the instrument would look something like this:



As in our example above, with the CBC analyzer, the test codes are unrecognized by SchuyLab, and thus have question marks appended. Now we go to **F8. Tools, Set-Up,** and **Device Setup** to update the instrument test list. When we're done, the Update [Instrument] Test List box looks something like this:



With the alias list translating the device's test codes to SchuyLab's test codes, let us return to **F4. Devices** and take another look at the results.

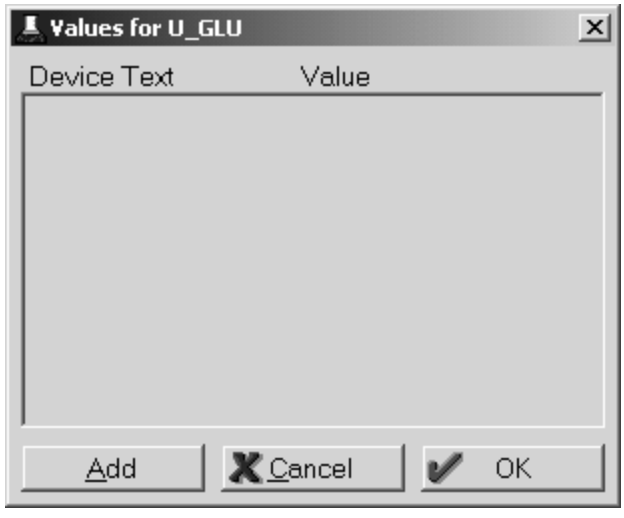


Now, for the tests we'd entered in the Device Setup table, the question marks are gone and the check boxes are in place. But now the test value for the U_GLU test (among others) has a question mark!

The reason is that, although SchuyLab has been instructed to translate the test ***codes*** it receives from the instrument; it hasn't yet been instructed to translate the test ***values*** it receives. And in this particular case, the test values defined for U_GLU don't include "100".

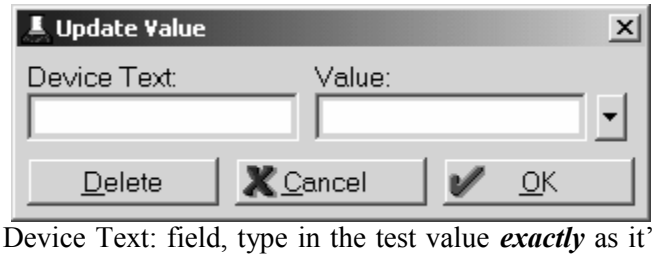
Configure the Test Values Received from an Online Instrument

1. Select **F8. Tools.**
2. Select **Set-Up.**
3. Select **Device Setup.** SchuyLab displays the Update Device Tests box. Click the mouse on the instrument you want to work on. SchuyLab displays the Update [Instrument] Test List box.
4. Select the test whose values need translating. SchuyLab displays the Update Test box.
5. Select the **Values** button. SchuyLab displays the Values for [Test] box.

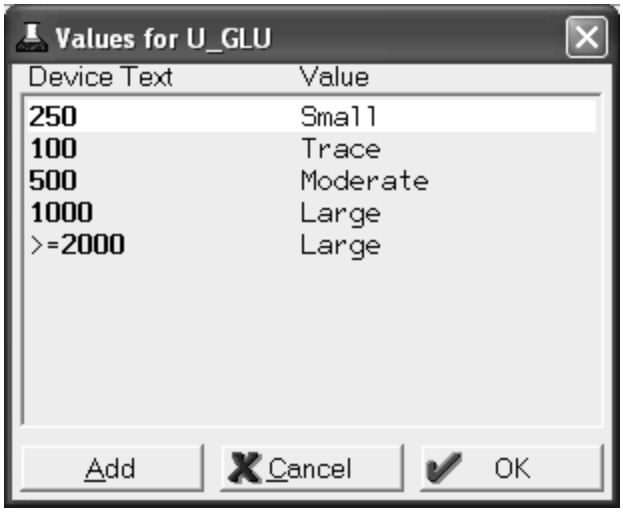


This is the alias table for the values for this particular test. It translates the values as sent by the instrument into the values defined by SchuyLab for that test. (If the values sent by the instrument are identical to those defined in SchuyLab, it may not be necessary to set up a translation table; it will vary between instruments. It's still a good idea, though.)

6. To add a value to the table, select **Add.** SchuyLab displays the Add Value box.

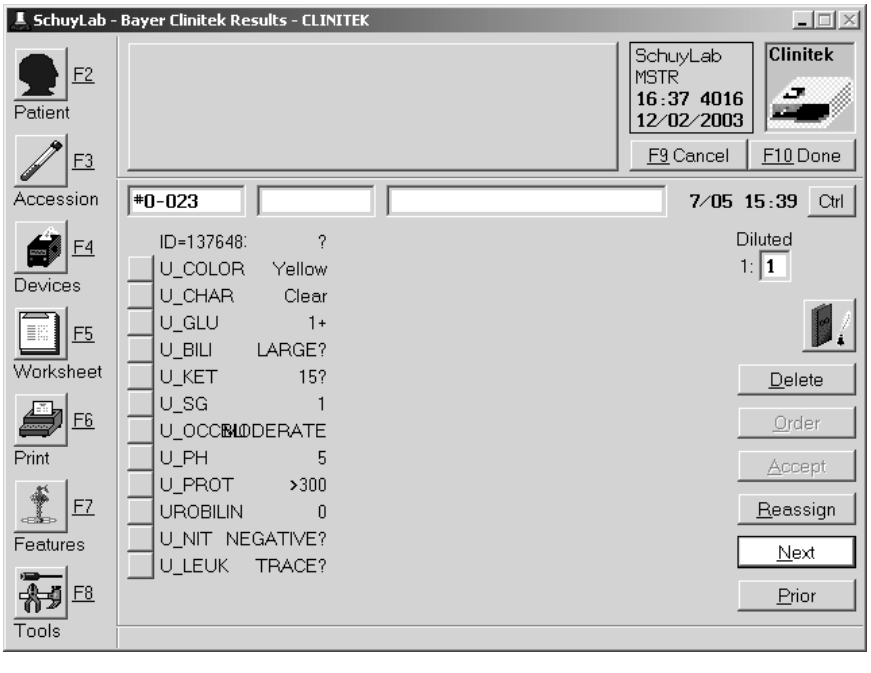


7. In the Device Text: field, type in the test value ***exactly*** as it's sent from the instrument. (If you don't remember what that is, go back to the **F4. Devices** screen and select the appropriate instrument icon. SchuyLab will show the test value used by the device, with a question mark added. Be sure not to include the question mark when typing the test value into the Add Value box!)
8. In the Value field, pull down the list of values defined for that test, and select the one you wish to be equivalent to the value sent from the device. (In the illustrated example, the urinalysis device sends "100". The values defined for U_GLU don't include "100" -- it's not a numeric test -- but do include "1+". We choose that to equate to "100".) Select **OK** to return to the Values for [Test] box.
9. To add another value, repeat steps 6 - 8. When done, select **OK.** When you have added all the test values, the box will look like:



10. To add values to another test, repeat steps 4 - 9. When done, select **OK.**
11. Select **OK** to leave the Update [Instrument] Test List.

Now, when we return to **F4. Devices** and look at the urinalysis results, they look something like this:



Now the value for U_GLU shows no question mark, and is in the format defined in SchuyLab. It can be accepted in the usual manner.

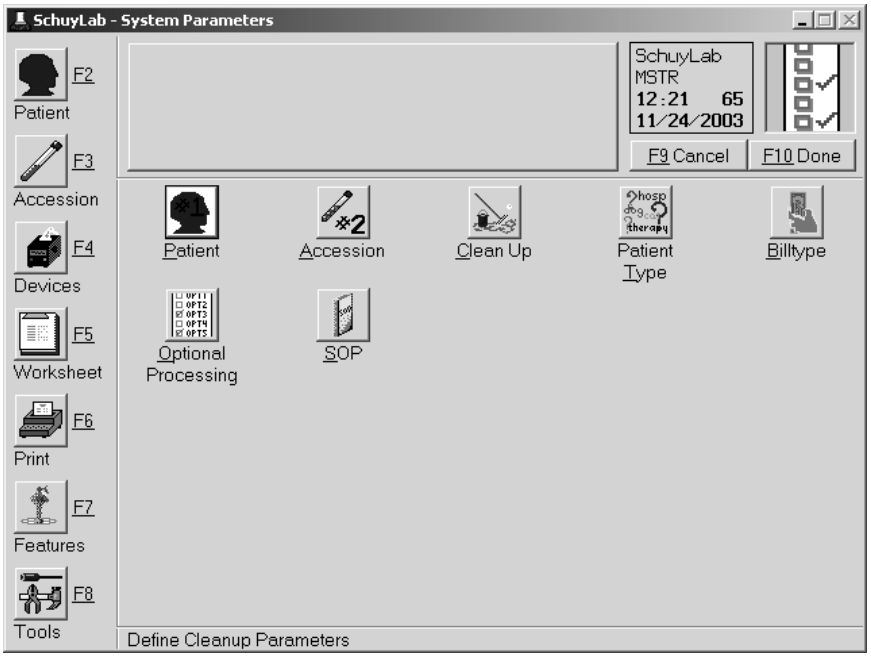
Parameter ID Numbers

SchuyLab has a number of automatic functions that work more or less in the background; you should seldom notice they're even there. But each one is configurable by your lab, in case you need to change one as your workload changes. The configuration of these system functions is done through the Parameter ID Definition icon.

To Change the Parameter Settings for the System Functions

Select **F8. Tools.**
Select **Set-Up.**
Select **Parameter ID Definition.**

SchuyLab displays the System Parameters menu screen.

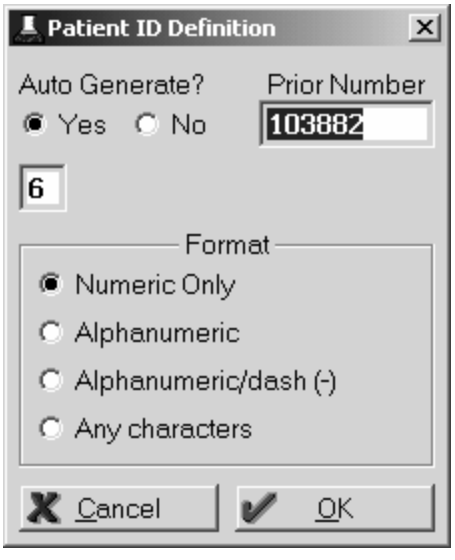


Patient ID Numbers

Each patient in a laboratory environment must be uniquely identified. As there's nothing to prevent two people from having the same name, the uniqueness of each

patient is guaranteed by associating a number with that individual. This is the patient ID number. The number may be the patient's Social Security Number, hospital file number, or a number generated specifically for your lab. SchuyLab is capable of generating its own patient ID numbers, of synchronizing with a hospital / office / accounting system to accept their numbers, or of letting you manually enter the patient ID number when you enter the patient into the system. The following protocol tells you how to set the ***type*** of number you wish (i.e. SSN format: 123-45-6789, vs. straight numeric: 12345), the number of digits it has, and the starting point of the sequence.

1. From the System Parameters menu screen, select **Patient.** SchuyLab displays the Patient ID Definition box.



2. Fill in the fields as follows:

Auto Generate? Tells SchuyLab whether or not to automatically generate patient ID numbers as each patient is entered into the system. Select "Yes" or "No" as desired.

Prior Number If you selected "Yes" for Auto generation, set this number of up to 9 digits to control where the auto generated numbering begins. For example, if you wish your numbering to begin at "1001", set this number to "1000".

Format	Choose one of the four selections available here to determine the types of characters which may appear in the patient ID number. (Numbers only, numbers and letters, numbers and dashes, any character.)

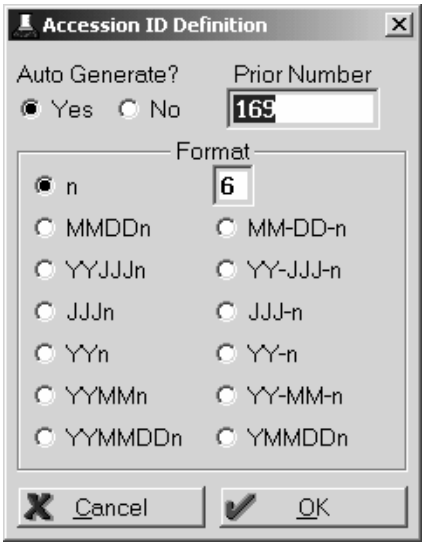
3. When completed, select **OK.**

Patient ID Quick List
To set or change the patient ID number
1. Select **F8. Tools.** SchuyLab displays the Tools menu. 2. Select **Set-Up.** SchuyLab displays the Set-up menu. 3. Select **Parameter ID Definition.** SchuyLab displays the Parameter ID menu. 4. Select **Patient.**

The Specimen ID number

Each specimen in a laboratory environment must be uniquely identified by its accession number, also called the specimen ID number. (Additionally, each specimen must be linked to a patient identifier, date and time of draw, and the identity of person who drew the specimen. But the accession number is assigned to that specimen and that specimen only.) SchuyLab is capable of generating its own specimen ID number, or of letting you manually enter the specimen ID number when you enter the specimen into the system. The following protocol tells you how to set the ***type*** of number you wish (i.e. Year and date and number, Julian date and number, straight numeric), the number of digits it has, and the starting point of the sequence.

1. From the System Parameters menu screen, select **Accession.** SchuyLab displays the Specimen ID Definition box.



2. Fill in the various fields as follows

Auto Generate? Tells SchuyLab whether or not to automatically generate specimen ID numbers as each specimen is entered into the system. Select "Yes" or "No" as desired.

Prior Number: If you selected "Yes", set this number of up to 9 digits to control where the auto generated numbering begins. For example, if you wish your numbering to begin at "1001", set this number to "1000".

'n' digits Enter a number between 1 and 9 to control the number of digits a specimen ID will have, whether auto generated or manually entered.

Format Choose one of the twelve selections available here to determine the type of specimen ID number which will be auto generated. The descriptions of the formats use the following elements:

YY Year (two digits)
MM Month (two digits)
DD Day (two digits)
JJ Julian date (three digits)
n number of digits, as defined in the **'n' digits** field

Thus, if you've selected the YYMMDDn format, and set 'n' = 3, then the accession number for the first specimen on October 26, 1995, would be "951026001".

3. When completed, select **OK.**

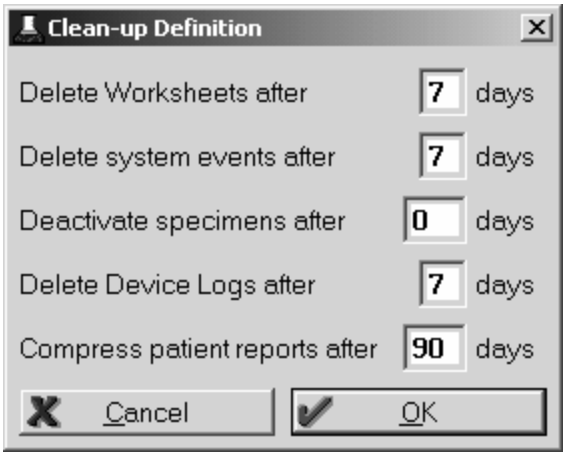
Specimen ID Quick List
To set or change the accession (specimen ID) number
1. Select **F8. Tools.** SchuyLab displays the Tools menu. 2. Select **Set-Up.** SchuyLab displays the Set-up menu. 3. Select **Parameter ID Definition.** SchuyLab displays the System Parameter menu. 4. Select **Accession.**

CleanUp

Before the Cleanup Database icon can be used, the parameters for the various cleanup functions have to be set. This is simply telling the computer how long to wait before deleting the completed worksheets, orders, &c.

To Set the Cleanup Database Parameters

1. From the System Parameter menu screen, select **Clean Up.** SchuyLab displays the Clean-up Definition box.



2. Complete the fields in the Clean-up Definition box as follows

Delete worksheets after __ days	Enter two digits in the box to determine the number of days that will elapse before completed worksheets are purged from the system. If you are uncertain, Schuyler House recommends "3" as an initial setting.
Delete system events after ___ days	Enter two digits in the box to determine the number of days that will elapse before system events are purged from the system. If you are uncertain, Schuyler House recommends "3" as an initial setting
Delete specimens after __ days	Leaving this setting at "0" means that specimen ID numbers are ***never*** deleted. Schuyler House earnestly recommends this setting. The one exception is for specimen ID formats that re-use numbers (e.g., a month-day system, with no year recorded); in that case, we recommend "350" for this setting.
Delete Device Logs after ___ days	This option deals with the communications logs for your online instruments. Schuyler House recommends "14" for this setting.
Compress patient reports after ___ days	This option deals with the data compression routine for storing patient reports. Your setting will depend on the type of work done in your lab; in general, "180" is a reasonable setting.

3. When completed, select **OK.**

Defining New Patient Types

Most of your patients will be 'normal', or at least typical of your doctors' medical practice. Some labs, however, find it necessary to differentiate between types of patients, for medical purposes. As an example, for some tests, pregnant or diabetic patients may have different normal ranges than 'ordinary' people. (As another example, veterinary reference labs have different normal ranges for cats, dogs, horses, &c. Our examples below are based on such a lab.) For such cases, you can define different types of patients, and each patient type can be assigned a separate range of test values. Each new patient can then be defined as a given patient type, through the Change Demographics function in the Patient Processing screen.

1. From the System Parameters menu screen, select **Patient Type.** SchuyLab displays the Update Patient Type List box.

The box shows the list of patient types currently defined in the system. Note that, once a patient type has been defined, ***it cannot be deleted from the system.*** (It can, however, be made inactive. More on that in a minute.)

2. Select **Add.** SchuyLab displays the Add Type box.

3. In the Code field, type the code name (up to eight characters) for this patient type. In the Description field, type a more complete description for your lab's internal use.

4. When completed, select **OK.**

To make a patient type inactive:

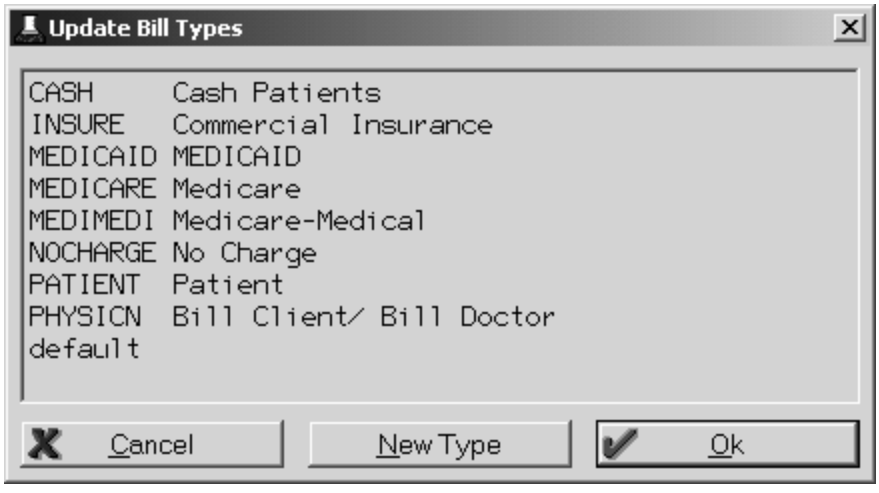
1. From the System Parameters menu screen, select **Patient Type.** SchuyLab displays the Update Patient Type List box.
2. Select the patient type to be made inactive. SchuyLab displays the Update [Patient Type] box.
3. Put a check in the check box labeled "Inactive code, no new entries".
4. Select **OK.**

Defining or Updating Bill Types

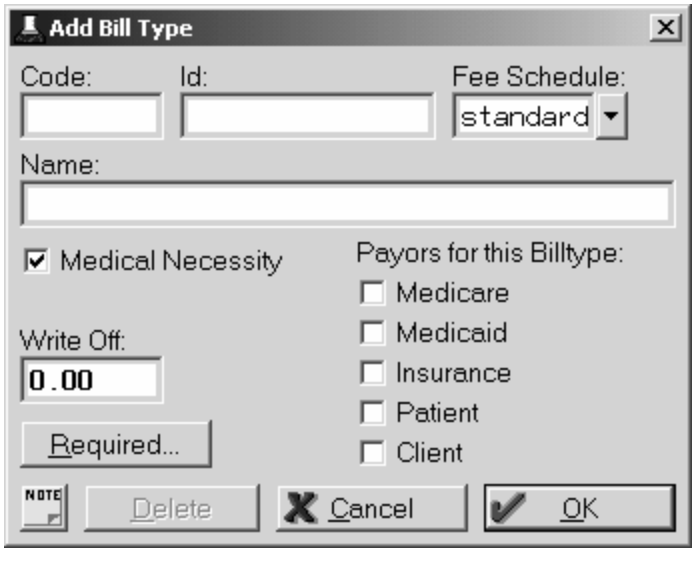
Bill Types represent how your lab's different payors pay for which bills, and in what order. If your SchuyLab system includes the Billing Module, Bill Types are an indispensable part of your fee schedule definition. However, even if your SchuyLab system doesn't include the Billing Module, Bill Types is still a valuable method of generating administrative reports separated by category -- in this case, by type of payor. (It might, for instance, be important for you to know what fraction of your patients are Medicare patients.)

Once all the Bill Types are defined, each new patient can then be assigned a given Bill Type, through the Change Demographics function in the Patient Processing screen.

1. From the System Parameters menu screen, select **Billtype.** SchuyLab displays the Update Bill Types box.



2. To update a Bill Type that's already defined, select it from the list. To create a new Bill Type, select **New Type.** Either way, SchuyLab displays the Add Bill Type box.



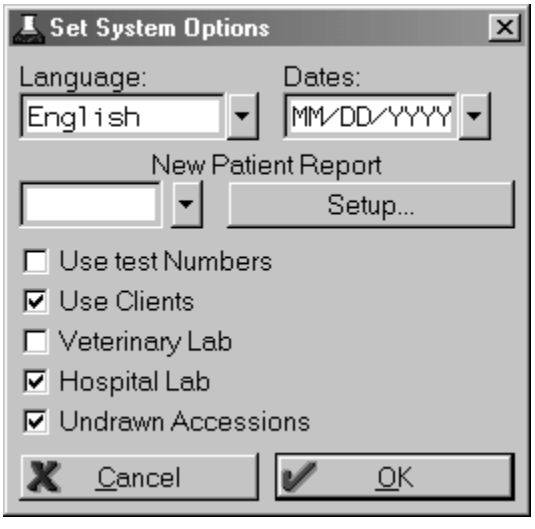
3. If your SchuyLab system does not include the Billing Module, you only need to fill the Code and Name entry fields. In the Code field, type the code (up to eight characters) for the new Bill Type. In the Name field, type a more complete description for your lab's internal use.
   If your SchuyLab system ***does*** include the Billing Module, more extensive entry will be needed. This is described in detail in the SchuyLab Billing Manual. We needn't go into it here.

4. When completed, select **OK.**

Optional Processing

There are system options that are considered 'global' to the SchuyLab system: that is, how these options are set will affect your lab's operating procedures, how your screens will look, your reports, and much more. These are the use of Test Numbers, and the use of Clients. These system options are activated using the Optional Processing icon.

Since the use of these options affects your entire LIS, Schuyler House **does not recommend unsupervised changes to the parameters accessed here**. If you have any questions on whether these changes would benefit your lab, please contact Schuyler House.



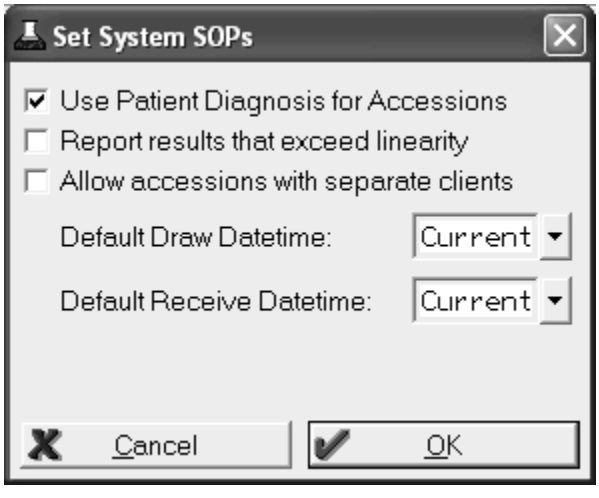
Language:	**At present, you can choose English (default), Spanish, French, German or Italian. Currently the only part of SchuyLab that will convert to that chosen language is the F9, Cancel button and parts of the SchuyLab copyright.**
Dates:	**Changing this format changes the date format for a patient's DOB, the draw, receive date, etc.**
New Patient Report:	**Many POL's need to print a set number of labels with the new patient's medical record number for the various forms and folders. You have the option to configure a report (labels or otherwise) that will automatically generate this 'report' (labels) for you. See Sec. 7 – Reports and Printing for more**

information.

Use test Numbers:	**Marking this box will allow you to use test numbers instead of test codes.**
Use Clients:	**With this box marked, when you enter a new patient, instead of SchuyLab asking for a doctor as a way to identify the patient, it can ask for a client.**
Veterinary Lab:	**Mark this box if you are a Vet Lab. The patient icon changes to a dog instead of a profile of a person and the Patient Demographics will include fields for breed, the name of the pet, and spayed / neutered.**
Hospital Lab:	**Mark this box will open the bed and room options in the Patient Demographics**
Undrawn Accessions:	**Allows scheduling of future draws. If checked, the Input Specimen window will have a Draw Required option. Checking this option will place the specimen on the Draw List. However, the specimens will not appear on Worksheets until they have been processed using the Processing Draw List Specimens option.**

SOP (Standard Operating Procedures)

At present these are the procedures you can choose from.



Use Patient Diagnosis for Accessions	**Sometimes a patient will have a recurring condition (i.e. diabetes, Coumadin therapy) that may be used as a diagnosis code. If this box is checked and the diagnosis code is attached to the patient (go to Change Demographics and add the proper diagnosis code there), then this diagnosis will also be included in one of the diagnosis boxes when you order a test for a new accession.**
Report results that exceed linearity	**When a linear range is specified for a test in SchuyLab, any results which fall outside that range will be reported as either greater-than or less-than the maximum or minimum amount specified, with either a greater-than or a less-than symbol after it (i.e.; >500>, or <.05<). If the "Report Results that Exceed Linearity" option is selected however, SchuyLab will instead report the actual result reported out by the instrument, with a greater-than or less-than symbol following it, as is appropriate (i.e.: 552>,or .03<).**
Allow accessions with separate clients	**Many doctors now work at more than one clinic or medical group. When this box is marked a separate Client can be entered upon ordering a new accession.**
Default Draw Datetime / Default Recieve Datetime	**Choose a selection of the degree of retention of the Draw and Received Date/Time in the accessioning process. You can choose from: Current – When you choose this selection, the date and time will always default to the present date and time with each new accession.** **(blank) - When you choose this selection, the date and time will always default to a blank date and time with each new accession. You will need to enter the date and time for each accession.** **Prior - When you choose this selection, the date and time will always default to the date and time of the accession you just finished with.**

Annotation (Remark Codes and Note Codes)

The Remark Codes and Note Codes are frequently used “canned” comments. Each code consists of a message which is associated with a number. The difference lies in their size and ease of use:

Remark Codes are shorter, up to 80 characters in length. Up to two Remark Codes can be appended to an accession and up to four Remark Codes can be appended to a test result. A single Remark Code can also be attached to a test definition, or to a value of a test. They are easier to use, and can be categorized according to test

results (including Microbiology), QC, or Billing. One thing to note: if or when you change a remark code, all past remark codes will change also.

Note Codes are much longer, and there is no limit to how many can be appended to a test result. Their advantage is that, unlike Remark Codes, which print as separate comments, Note Codes combine into a single block of unified (and, one hopes, coherent) text. They are particularly useful for report with a single theme but disparate elements, such as Cytology.

Setting up Remark Codes

SchuyLab contains three separate sets of Remark Codes: one for patient test results, one for QC results, and one for billing. Each set can contain up to 255 user-defined comments.

When entering patient test results (or QC results), a Remark Code number may be entered along with the result value; the message associated with that number is thereby linked to the test result. Up to four Remark Codes may be linked to a given patient or QC result. (The Remark Code may or may not print out on a patient report: when you set up the Remark Code message, you decide whether or not a particular code will print, or if it's visible only within SchuyLab.) SchuyLab keeps track of your place in the system, and lists the Patient Remark Codes when in the Patient Processing Screen, the Control Remark Codes when in the QC Entry screen, &c.

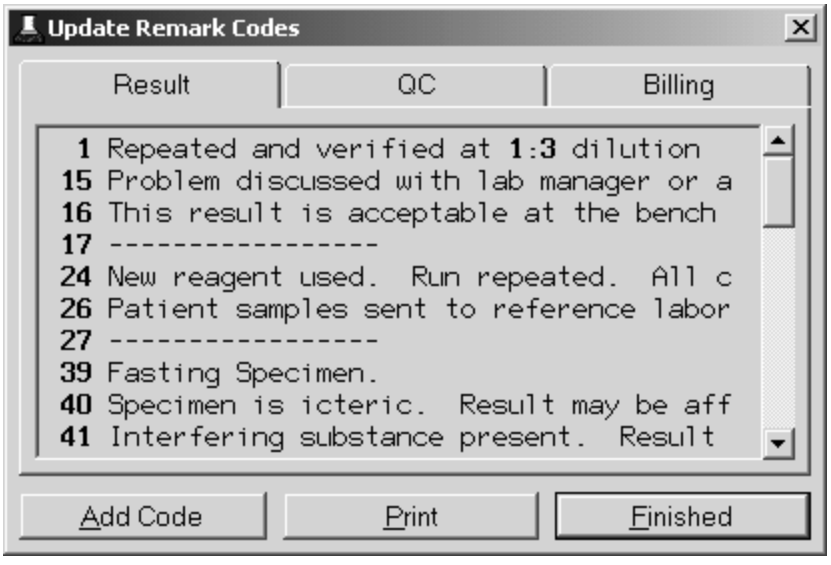
Some typical examples of Remark Codes are:

> "Moderate hemolysis visible; result may be affected."
> (Prints out on patient report)
>
> "This level is >2SD, <3SD. All other levels of this control are <2SD."
> (View only)

To Access Remark Code Functions

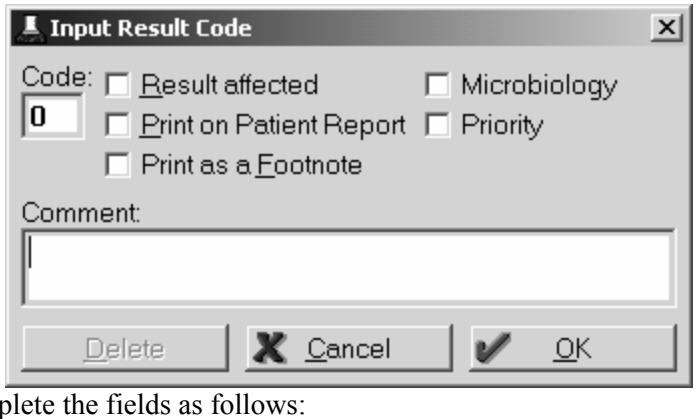
> Select **F8. Tools.**
> Select **Remark Codes.**

SchuyLab displays the Update Remark Codes box.


Update Remark Codes
Result
QC
Billing
1 Repeated and verified at 1:3 dilution
15 Problem discussed with lab manager or a
16 This result is acceptable at the bench
17 ----------
24 New reagent used. Run repeated. All c
26 Patient samples sent to reference labor
27 ----------
39 Fasting Specimen.
40 Specimen is icteric. Result may be aff
41 Interfering substance present. Result
Add Code
Print
Finished

To Create a New Remark Code

1. Select the type of Remark Code (Patient, Control, or Billing) from the tabs across the top of the box.
2. Select **Add Code.** SchuyLab displays the Input Remark Code box.



3. Complete the fields as follows:

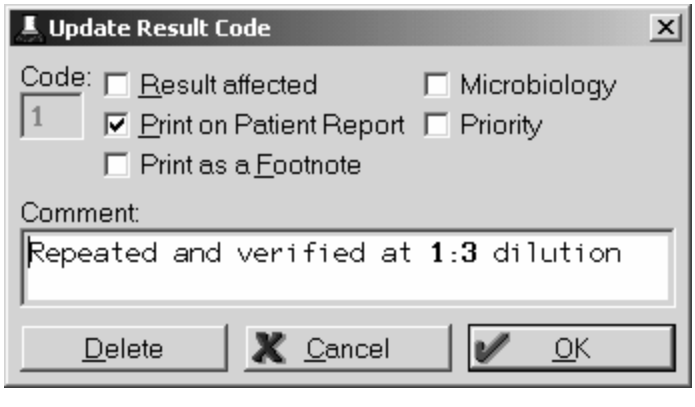
Code Enter any number between 1 and 255 that has not already been used in another Remark Code. (If you accidentally duplicate the number, when you try to exit this box, SchuyLab will beep at you and display a message at the bottom of the screen. Very embarrassing. Don't let it happen to you.)

Print on Patient Report	Check this box if you want the Remark Code to print on the patient report. (You'll want this about 99% of the time; but there *are* cases where you want a Remark Code to be for your lab's internal use only.)
Print as a Footnote	By default, Remark Codes print immediately after the test they annotate. Check this box if you want the Remark Code to print at the bottom of the page, instead. (This box is checked *in addition* to the Print on Patient Report box, not in its stead!)
Microbiology	Check this box if the Remark Code is to be used with Microbiology or Culture results.
Priority	These remark codes will be printed in the format you have chosen for Priority message (i.e. red, bold, etc).
Comment	Type the message you wish to have associated with this Remark Code. The message may be up to 80 characters in length. The message is not formatted, and will automatically 'wrap around' to the next line.

4. Select **OK.** SchuyLab returns you to the Update Remark Codes screen.
5. To add another code, repeat the above steps. When you are done, select **Finished.**

To Update a Remark Code

1. Select the type of Remark Code (Patient, Control, or Billing) from the tabs across the top of the box. Then select one of the entries from the list box. SchuyLab displays the entry in the Update Remark Code box.



2. Make the appropriate changes to the check boxes and the Comment entry field. (The Code field is grayed out; it cannot be changed. You can't change the number of a Remark Code once it's defined; you can only delete it.)
3. If you wish to delete the Remark Code entirely, select **Delete.** Otherwise.....
4. Select **OK.** SchuyLab returns you to the Update Remark Codes screen.
5. To update another code, repeat the above steps. When you are done, select **Finished.**

To Print a List of Your Remark Codes

1. Select the type of Remark Code (Patient, Control, or Billing) from the tabs across the top of the box.
2. Select the **Print** button. SchuyLab prints out a list of all Remark Codes of that type currently defined in the system. When done, select **Finished.**

Setting up Note Codes

SchuyLab can keep up to 999 separate Note Codes, which can be combined in any permutation into a seamless note for annotating test results. A bit more thought as to format may be needed to use Note Codes to their fullest potential.

Typical examples of Note Codes might be:

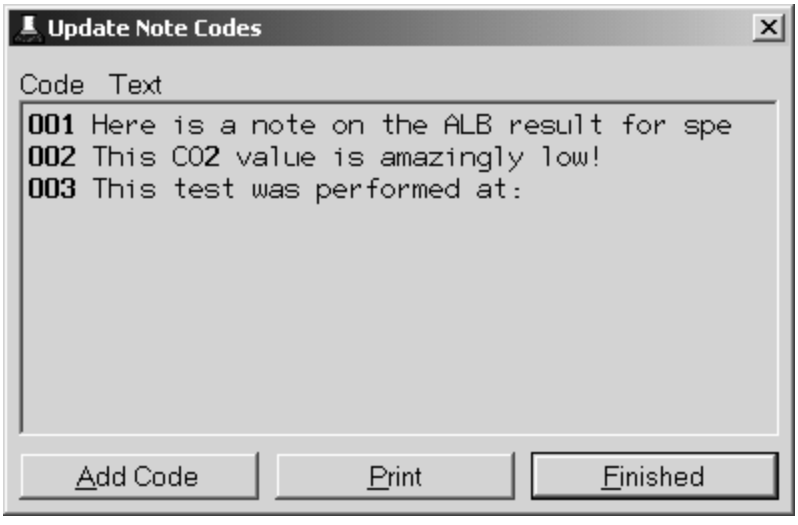
A header for a Cytology report, with other Note Codes representing paragraph-long results.

"This test was performed at:", with other Note Codes representing different send-out labs.

To Access Note Code Functions

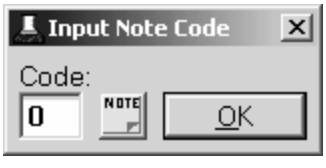
Select **F8. Tools.**
Select **Note Codes.**

SchuyLab displays the Update Note Codes box.

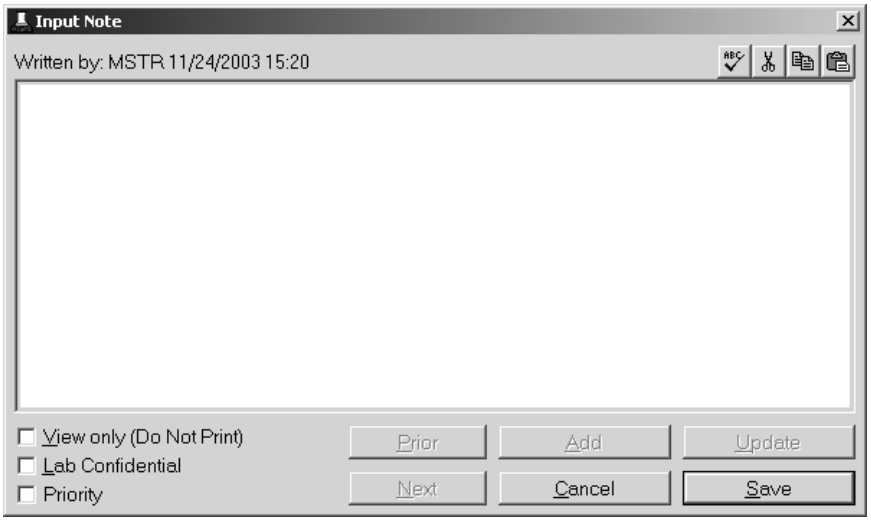

Update Note Codes
Code Text
001 Here is a note on the ALB result for spe
002 This CO2 value is amazingly low!
003 This test was performed at:
Add Code
Print
Finished

To Create a New Note Code

1. Select **Add Code.** SchuyLab displays the Input Note Code box.



2. In the Code field, type in the number of this Note Code (between 1 and 999) that has not been used by another Note Code.
3. Select the Note icon (the yellow square). SchuyLab displays the Input Note box.



NOTE: Many of these buttons are NOT used for the creation of a "canned" note, but for updating or adding a note to results or tests.

Icons in upper right hand corner — **As you can see from the icons in the upper right corner, the customary word-processing icons for Spelling, Cut, Copy and Paste are present . A spell-checking program and Cut and Paste buttons has been added. No longer will you be hassled by having to keep the 12 volumes of the Oxford English dictionary next to your computer to make sure you spelled Flebotemy correctly. These icons operate the same way in SchuyLab that they do in a word processing program. In order for Spellcheck to function, the following files must be loaded into the SchuyLab directory: ssceam2.clx, accent.tlx, correct.tlx, ssceam.tlx, tech.tlx, userdic.tlx. If there is a problem with your program, Technical Support can help you resolve it.**

View only — **When this box is checked, this note will not be printed on the result form. It is strictly for viewing only.**

Lab Confidential — **When this is checked, only those people with a designation as Lab Staff can see this note.**

Priority — **When this box is checked, any note will be printed in bold according to the default settings in the report setup area (see Sec. 7, Printing and Reports).**

Prior — **When this button is NOT grayed out, there is a prior note.**

Add — **Occasionally you may have to add another note to a result, or**

test, separate from a note that may be already attached (i.e. there is a note on the test and you need to add a note about the results). You add a note by clicking on this button.

Update — **You may have a few notes that already have information in them, but they need to be updated (i.e. a note that says "called Dr. ____ on _____"). To update this a note, click on this button and fill in the blanks, or other information that is needed.**

Next — **Much like Add, Next can be used in adding another note to a test or result following the first note.**

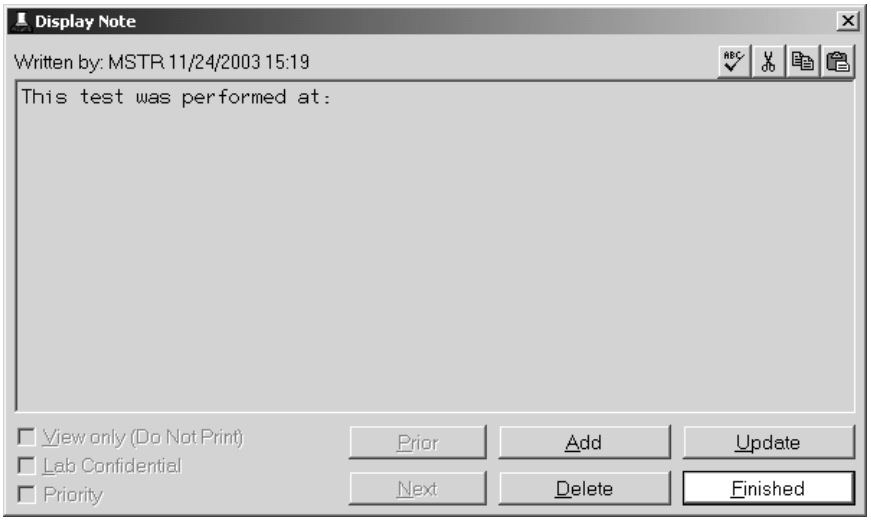
Cancel — **Clicking onto this button will cancel the note you were entering.**

Save — **This will save your note and display or print it as you have dictated.**

4. Type in your note in the large text area. You may use letters, numbers, and any text characters. The note will be free-form, automatically wrapping around at the end of a line; or you may use the Enter key as a carriage return (the only place in SchuyLab where the Enter key has this function).
5. When the text is complete, select **Save.** SchuyLab returns to the Input Note Code box.
6. Select **OK.** SchuyLab returns to the Update Note Codes box.

To Update a Note Code

1. From the Update Note Codes box, select the Note Code you wish to update. SchuyLab displays the Update Note Code box.
2. Select the Note icon (which has writing on it, so you know it's in use as a Note Code). SchuyLab displays the Display Note box.



3. To alter the text of the Note Code, select the **Update** button. SchuyLab displays the Update Note box. Type in the corrected text, and select **Save.** SchuyLab returns to the Update Note Code box.
4. Select **OK.** SchuyLab returns to the Update Note Codes box.

To Print a List of Your Note Codes

1. From the Update Note Codes box, select **Print.** SchuyLab prints a list of all Note Codes currently in the system.
2. When done, select **Finished.**

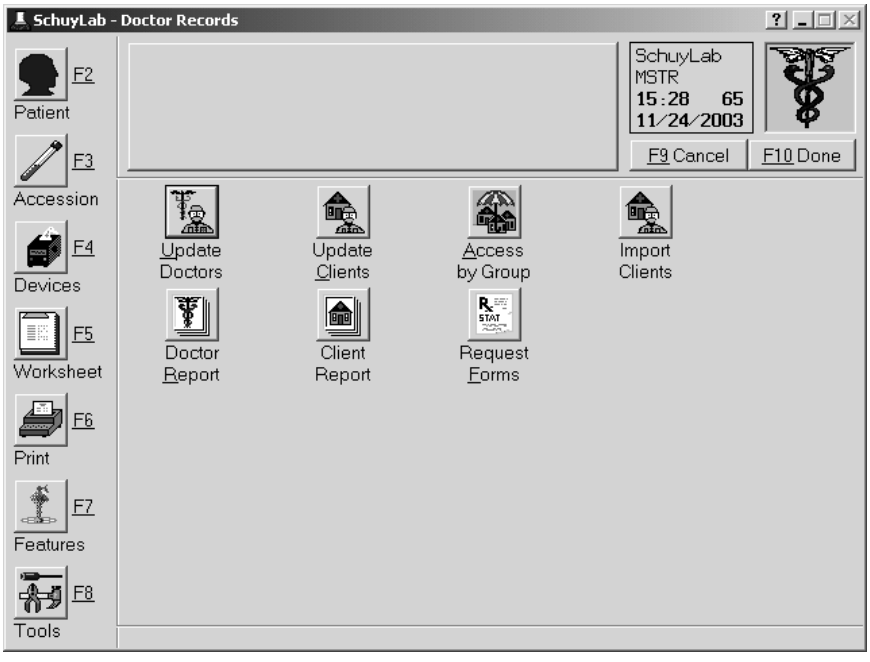
Doctor Records

Of course, no medical laboratory is complete without doctors to send specimens and ask for tests. Some labs service individual doctors, some service groups of doctors, and many, service both. SchuyLab can keep the records of your lab's clientele in its database; the name of a doctor and/or a client group can be attached to each patient. The client groups are also used by SchuyLab for setting up printing queues, billing, and a number of other tasks.

To Access the Doctor and Client Group Database

Select **F8. Tools.**
Select **Doctor Records.**

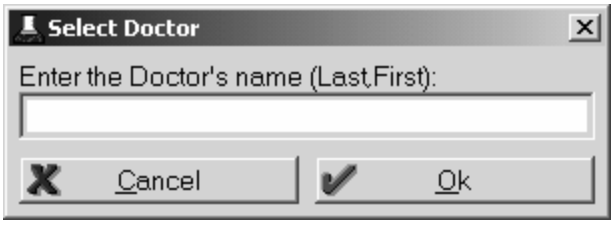
SchuyLab displays the Doctor Records menu screen.



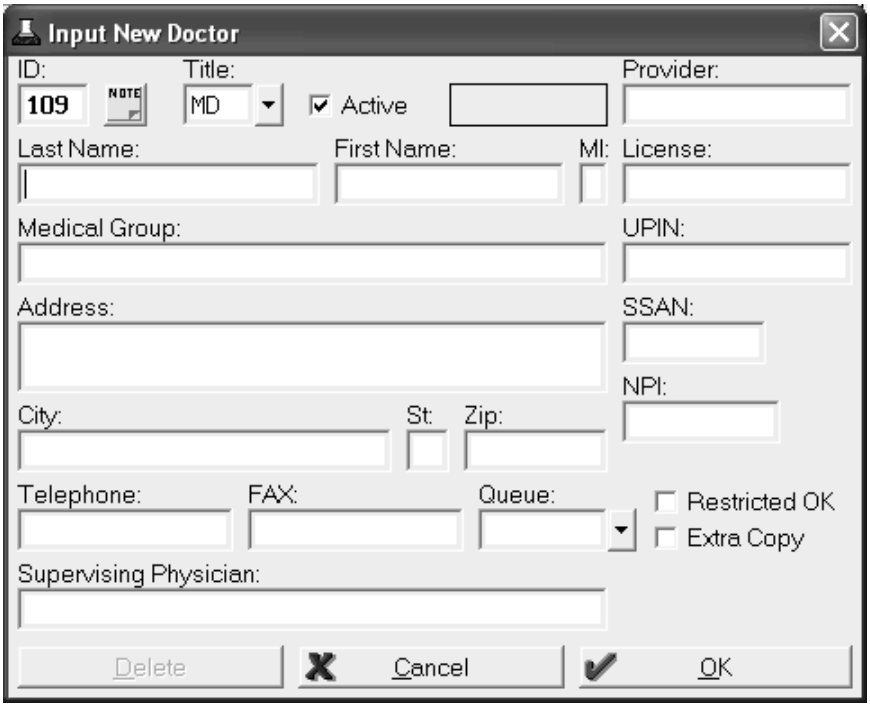
To Enter a New Doctor into the System

SchuyLab maintains a list of the individual doctors serviced by your lab. The doctor's name may be entered as part of a patient's demographics; and most patient report formats print the doctor's name at the top of the form.

1. Select Update Doctor. SchuyLab displays the Select Doctor box. You can enter the doctor's name and go directly to the doctor's record or just click on OK and it will go to the Which Doctor? Box listing all the doctors currently in the system.



2. Select **New Doctor** to enter a new doctor. SchuyLab displays the Input New Doctor box.



3. Complete the information in the box:

(All of the information fields in this box either default to a selection or are optional. [Well, it's really a good idea to enter the doctor's name, if nothing else.] If you don't wish to enter complete information on the doctor, skip over the rest of this box and select **OK.**)

ID

SchuyLab will enter the next number in sequence for your new doctor. Let it do this. If you wish to alter the default number to a different number, you may do so after you input this doctor into the system. If you try to do so now, while you are first putting the doctor in, SchuyLab will not retain an altered doctor ID number, but will revert to the one that the system issued.

To give the doctor a *specific* number: Enter the doctor's information, select OK. Re-select the doctor from the list, change the ID number, and select OK. Now the number is changed to the one you want.

Title

You may select "MD" or "DO" or any other on the list or you may select " " (blank).

Currently Active *This field is not in use at this time.*

Last, First, MI Doctors are entered last name first, then first name and if you want, middle initial.

Medical Group (Optional)
Do you wish to keep track of clients as well as doctors? The answer to this question depends upon the structure and customs of your laboratory rather than the capabilities of SchuyLab.
This entry field provides a means of distinguishing between Dr. Riley as an individual practitioner and Dr. Riley (at a different address, and possibly with different SOP's) as a member of Northwest Medical Group.
If you do not feel a great and pressing need to keep track of medical groups, skip this field.
If you *do* wish to keep track of medical groups, enter all or part of the name of the medical group. When you select OK, SchuyLab will either recognize the group as one already entered in the system, or will give you the opportunity to enter information on it.

Address, City, St, Zip, Telephone, Fax Self-explanatory, we hope.

Queue If you want to fax a result to a doctor instead of setting him up as a client, you add the queue name (fax) here and add the fax number for this doctor. On more information on SchuyFax see Appendix – SchuyFax.

Supervising Physician This field allows a nurse or intern to order tests and receive the resulting report under the supervision of a doctor. Enter the RN or Intern as if he were a doctor, but in the Supervising Physician field put the name of the appropriate MD. The doctor in the Supervising Physician field must already exist as a doctor in SchuyLab. The doctor's name and PIN will appear on the HCFA form in the Billing module, but not on the Patient Report.

Restricted OK When this box is checked, any restricted test results (i.e. HIV, Hepatitis) will be allowed to be faxed.

Extra Copy When this box is checked, an extra copy of the results will be printed.

Provider, License, UPIN, SSAN	(Optional) These fields may be filled with the information you wish to keep on this doctor, if you have it. (If your system uses the Billing Module, these are no longer optional; they become mandatory.)
NPI	National Providers Identification
Delete	This button will delete the record
Cancel	Clicking onto this button will cancel the record you were entering.
OK	This will save your record.

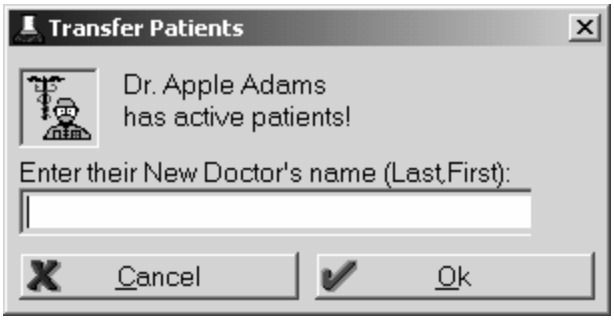
4. Select **OK.** SchuyLab returns you to the Update Doctors list box.
5. Repeat for the next doctor. When all the doctors are entered, select **OK.** SchuyLab returns to the Doctor Records menu screen.

To Update a Doctor Record

1. Select **Update Doctor.** SchuyLab displays the Update Doctors box.
2. Select the doctor whose record you wish to update. SchuyLab displays the Update Doctor Record box (exactly the same as the Input New Doctor box).
3. Make the modifications you wish to the doctor information.
4. Select **OK.** SchuyLab returns you to the Update Doctors list box.
5. Select **OK.** SchuyLab returns to the Doctor Records menu screen.

To Delete a Doctor from the System

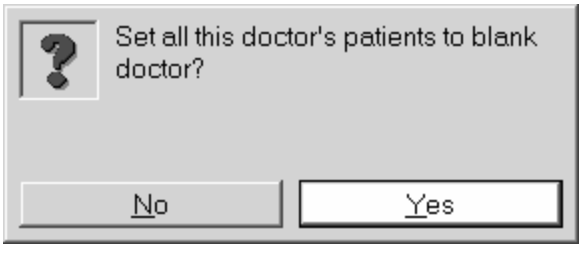
1. Select **Update Doctor.** SchuyLab displays the Update Doctors box.
2. Select the doctor whose record you wish to update. SchuyLab displays the Update Doctor Record box (exactly the same as the Input New Doctor box)..
3. Select **Delete.** If no patients have been assigned to that doctor, SchuyLab deletes that doctor's record and returns to the Doctor Records screen. If patients ***have*** been assigned to that doctor, SchuyLab displays the Transfer Patients box, asking you to name a doctor to whom those patients are to be reassigned.



4. Enter the new doctor's name or ID number in the entry field. (If you can't remember the exact spelling, enter the first letter of the new doctor's surname. SchuyLab will display a list of all doctors whose names start with that letter. Select from the list.) Select **Ok.**

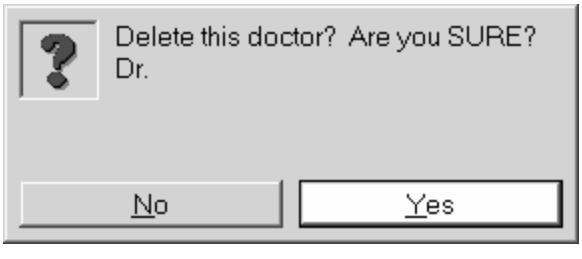
OR

Leave the New Doctor's Name field blank. SchuyLab displays a dialog box, asking if you wish all the patients of this doctor set to blank doctor.



Select **Yes.**

5. SchuyLab deletes the doctor record and returns you to the Update Doctors list box.
6. If the doctor you are deleting does not have any patients, SchuyLab displays a dialog box, asking if you are sure you want to delete this doctor.



Select **Yes.**

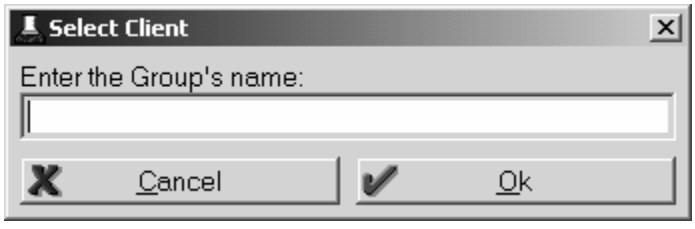
7. SchuyLab deletes the doctor record and returns you to the Update Doctors list box.
8. Select **OK.** SchuyLab returns to the Doctor Records menu screen.

Clients

Clients (also called "Client Groups" or "Medical Groups", or just "Groups") deal with groups of physicians, as well as the organizational side of individual physicians. (That is, Dr. Price may be listed as a Doctor, but The Office of Dr. Price, A Licensed California Corporation, would be listed as a Client.) Like the doctor, the client is entered as part of a patient's demographics. Many billing and reporting functions access the client's name, rather than the doctor's name.

To enter a new client

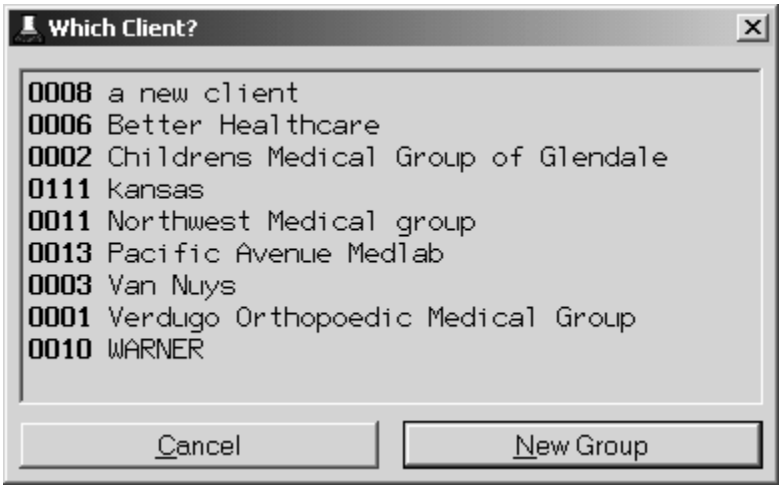
1. Select **Update Client.** SchuyLab displays the Select Client box.



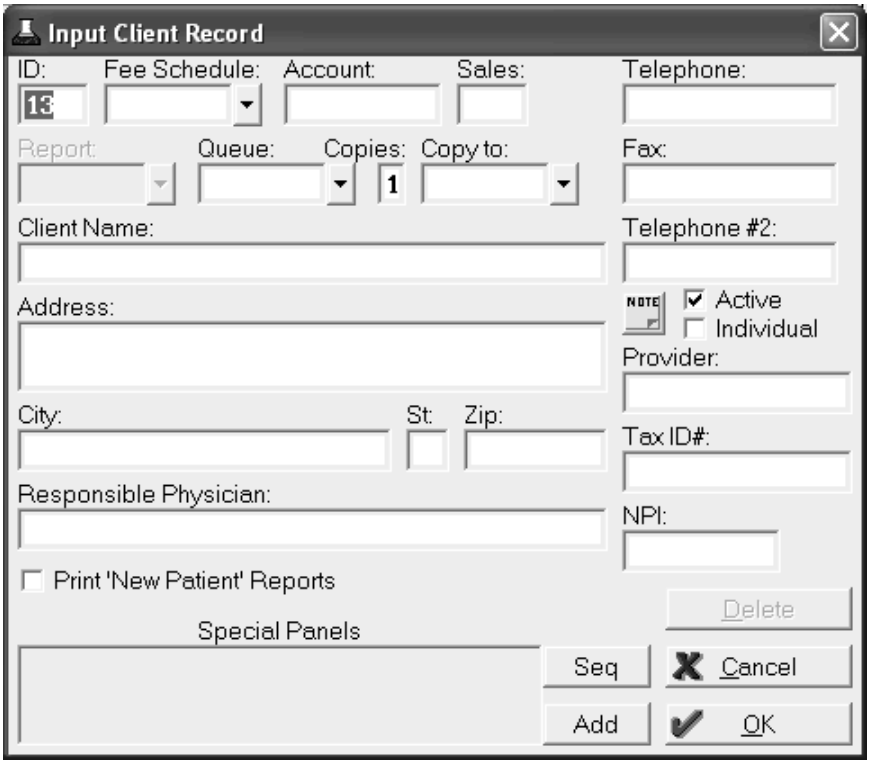
2. Type in the name of the new client and select **Ok.** SchuyLab displays the Input Client Record box if the name is new (which we're assuming here), or the Update Client Record box if the name is already in the system.

OR

Without typing anything in the entry field, select **Ok.** SchuyLab displays the Which Client? Box, listing all the Clients currently defined on your SchuyLab System.



Select **New Group** to enter a new client. SchuyLab displays the Input Client Record box.



3. Complete the information in the box:

ID — SchuyLab will enter the next number in sequence for your new client. If you wish to alter the default number to a different number, you may do so before you input this group into the system. If the number you choose is already in use, SchuyLab will not accept this record and give you an error message at the bottom of the screen.

Fee Schedule — (Optional; used in conjunction with the SchuyLab Billing Module)
You may assign a fee schedule to a specific client. Patients defined as "PHYSIC" Bill Types, whose demographics include this client, will now automatically bill to the defined fee schedule.

Account — *This field is not in use at this time.*

Sales	(Optional) Some labs keep track of the sales people who bring in new clients. Some identifier (initials, a number, whatever) can be typed into this field to denote the salesperson who brought in *this* client. (Generally, it's only for your own internal records, though some of the reporting features in the SchuyLab Billing Module use the sales person's ID.)
Report	*This field is not in use at this time.*
Queue	(Optional) This field selects the printer queue for the test reports of the patients associated with this client. By default, it will be the printer queue normally used at your lab for patient reports. However, if you have several printer queues (most especially, if you have either the Remote Printer or Fax feature), you can assign any of the queues to this client's patient reports.
Copies	(Optional) By default, SchuyLab prints a single copy of a test report at a time. Typing in a larger number in this field will print that number of copies for all of the patient reports for this group.
Copy to:	(Optional) If, in addition to the normal patient report queue defined in Queue, you would like patient reports to simultaneously print on another printer, select that printer's queue here.
Client Name:	Enter the name of the client, as you wish it to appear on reports and invoices.
Address, City, St, Zip, Telephone (1 & 2), Fax	Self-explanatory.
Active?	*This field is not in use at this time.*
Individual	In some cases, an individual doctor may also be considered a "client". This box checked will let you know that there is only one doctor attached to this client.

Provider, Tax ID#	(Optional) These fields may be filled with the information you wish to keep on this client group, if you have it. (If your system uses the Billing Module, these are no longer optional; they become mandatory.)
NPI	National Provider Identification
Responsible Physician:	This physician is the responsible party for the clinic / medical group.
Print "New Patient" Reports	If this box is checked, when a new patient is entered in the system, a "New Patient" report will print out for this client. For more information see Sec. 7 – Printing and Reports.
Special Panels	Each client may have assigned special panels, to be ordered for the patients of that client and no other. The panels must first be defined through Panel Definition (see Sec. 4 – Tests and Panels). To assign the special panels to this client, select **Add.** SchuyLab displays the "Add Panel(s) to Panel" box. Select the panels (up to five of them) that are this client's special panels. Select **Done.** Once the panels are selected, they must be put in the proper sequence: the first panel to be "Client#1" on the Order Tests screen, the second panel to be "Client#2", &c. To do this, select **Seq.** SchuyLab displays a list of the special panels for this client. Re-order the panels by selecting a panel you want to move, then clicking the mouse where you want the panel to be. When finished, select **Done.**

4. Select **OK.** SchuyLab returns you to the Doctor Records menu screen.

Access by Group

Ideally, an individual doctor will be attached to a specific client when originally entered into the system. In the real world, you may need to attach a doctor -- or a series of doctors -- to a client sometime after they've all been entered. Or, you may want to see a list of ***which*** doctors are connected to a specific client. For either of these tasks, use the Access by Client icon.

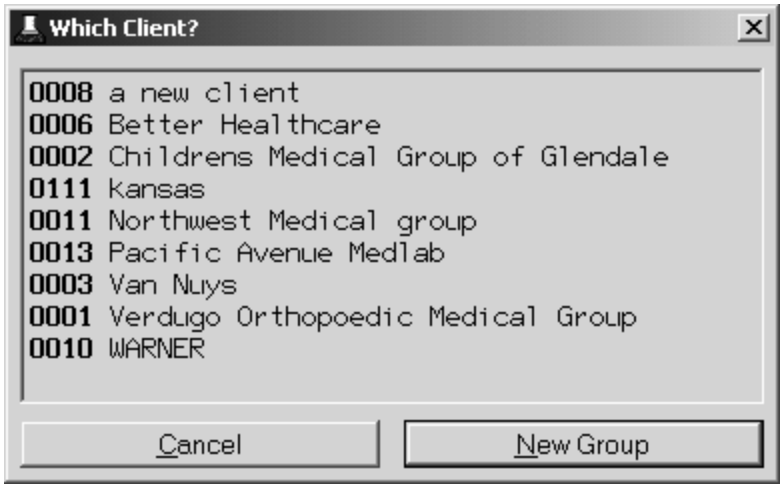
To access a doctor via the client name

1. Select **Access by** Client**.** SchuyLab displays the Select Client box.

2. Type in the name (or client ID number) of the client you want to access, and select **Ok.**

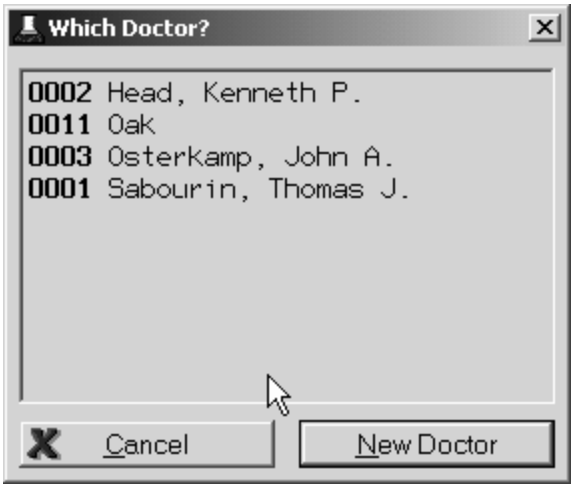
OR

Without typing a client name, simply select **Ok.** SchuyLab displays a list of the currently defined clients.



Select a client from the list.

3. If there are no doctors associated with the client, or if there's only one, SchuyLab displays the Update Doctor Record box, with the medical group's name already entered; fill in or update the remaining fields accordingly. If there are several doctors associated with the client, SchuyLab displays the Which Doctor? box, showing all the doctors associated with that client.



4. At this point, you can select one of the doctors on the list, to update the system. Or you can select **New Doctor** to add another doctor to the list. Either way, SchuyLab displays the Update Doctor box, with the medical group entry area already filled in. Complete the information in this box and select **OK**.

Import Clients

You may be one of the many labs that have added the SchuyLab system to your existing lab. If so, you already have a large client list that needs to be entered into the SchuyLab database. This can easily be done by a Schuyler House employee through **Import Clients**. The first step is for you to send us the database of client information in a comma delimited file or an HL7 file in the following format: id, name, addr1, addr2, city, state, zip, phone1, phone2, fax, provider, note. We will then convert it for you and install it onto your system when we first setup your computer. This is NOT a function that can be used over and over again on your SchuyLab system, but only once when we first set up your computers.

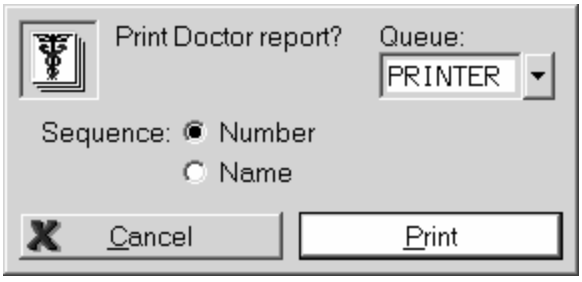
Doctor Report

This icon prints out a record of all the doctors who have been entered in SchuyLab. The doctors can be in either numerical or alphabetic order.

To print a list of doctors

Select **F8. Tools**.
Select **Doctor Records**.
Select **Doctor Report**.

SchuyLab displays a dialog box, asking how you want the report to print.



If you want the report to list the doctors in numerical order (by Doctor ID), select **Number.** If you want the report to list the doctors in alphabetical order (by last name), select **Name.** Then select **Print.** SchuyLab prints out a list of all the doctors in your system.

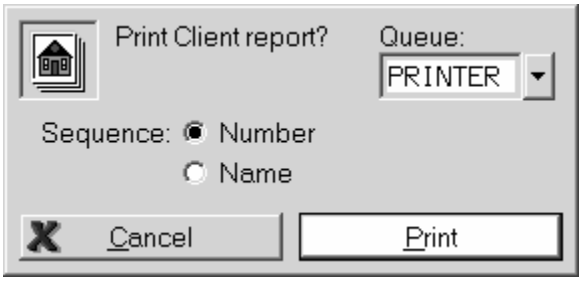
Client Report

This icon prints out a record of the clients that have been entered in SchuyLab. The clients can be in either numerical or alphabetic order.

To Print a List of Clients

Select **F8. Tools**.
Select **Doctor Records**.
Select **Client Report**.

SchuyLab displays a dialog box, asking how you want the report to print.



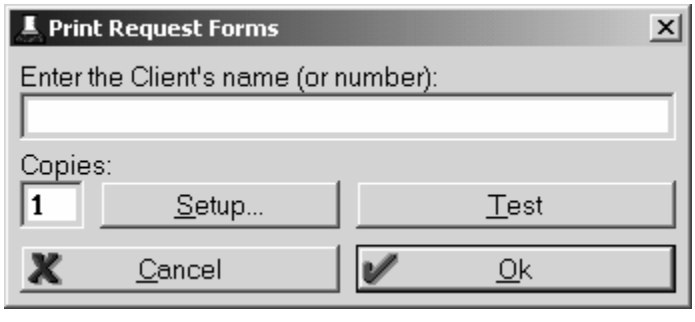
If you want the report to list the clients in numerical order (by Client ID), select **Number.** If you want the report to list the clients in alphabetical order, select **Name.** Then select **Print.** SchuyLab prints out a list of all the clients in your system.

Doctor Request Forms

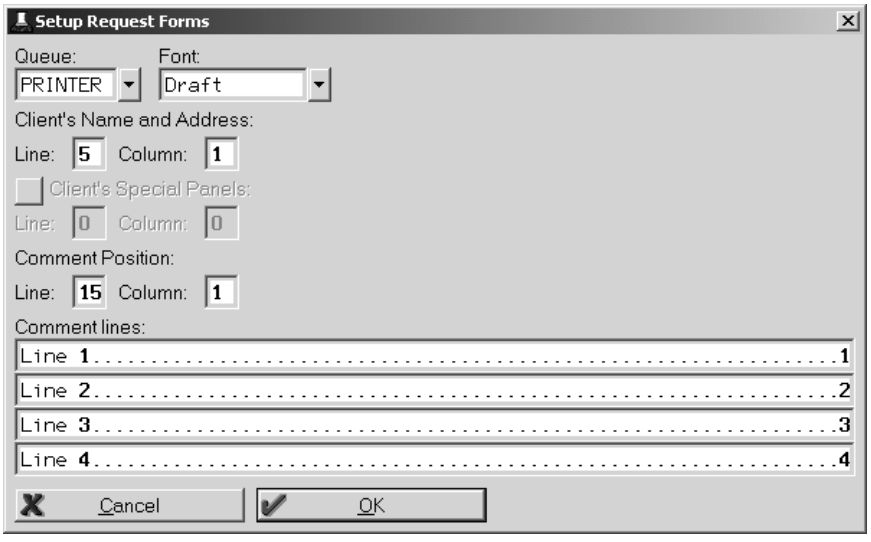
This icon personalizes the laboratory requisition forms that are distributed to your clients, so that they will order tests from ***your*** lab rather than someone else's. Use this option to print on the forms the name and address of the doctor to whom they will be sent (ten to fifty forms are generally personalized at one time). You may also add client-specific comments: for instance, if Dr. Green has two unique panels unlike anyone else's (say, a Dr. Green Panel and a Dr. Green Pediatric Panel), these may be printed on the Comment section of your requisition for Dr. Green. This generally makes a favorable impression on doctors and their staffs, since they no longer have to have to mark the individual tests and profiles that constitute these orders; now they can just mark the "Dr. Green Panel" instead. (Obviously, you will want to set up corresponding panels in SchuyLab labeled "GREEN" and "GRNPED".)

NOTE: Only one Doctor Request form template exists at any one time. SchuyLab does not retain a list of the individual doctor's request form configuration.

1. Select **Request Forms.** SchuyLab displays the Print Request Forms box.



2. Enter the client's name (or client ID number). SchuyLab will use this name to access the client's address as it's listed in their record. (Make sure the address ***is*** listed in the client's records.) Also, make sure you have the name spelled right (that is, as it's listed in SchuyLab).
3. Enter the number of copies you wish to print.
4. Select **Setup.** SchuyLab displays the Setup Request Forms box.



5. Select the Queue and Font from the options available. (If you are uncertain, leave them on the default settings)
6. For "Client's Name and Address" set the location on the form where the doctor's name and address will print:
    - set the number of *lines* down from the top of form to the start of the name/address area
    - set the number of *columns* from the left of the form to the start of the name/address area (each character or space = one column)
7. For "Comment Position", set the location on the form where the four lines of comment begin to prints:
    - set the number of *lines* down from the top of the form to the comment area
    - set the number of *columns* from the left of the form to the comment area (each character or space = one column)
    - type the text of the comment in the lines provided
8. Select **OK.** SchuyLab returns you to the Print Request Forms box.
9. Load the test requisition forms into the printer.
10. Select **Test.** SchuyLab will print out one test copy of the personalized form. Make any necessary adjustments. Select **Test** again.
11. When the requisition test print is correct, select **OK.** SchuyLab will personalize the number of copies you specified in Step 3, and return you to the Doctor Records screen.

ICD-9-CM Codes

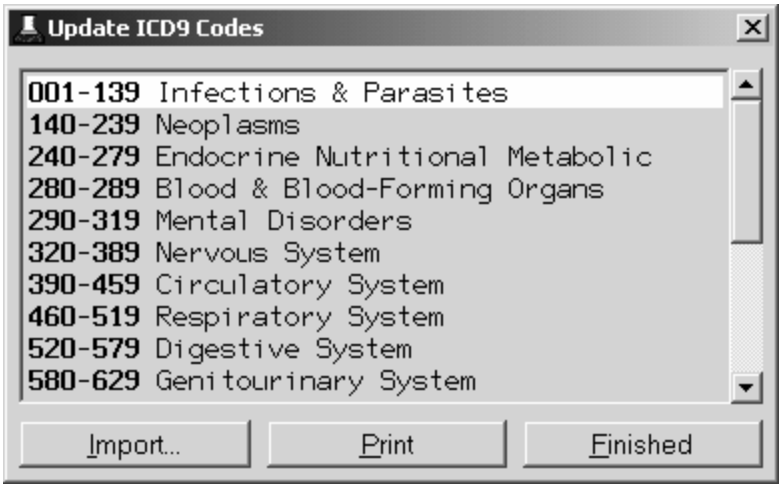
The International Classification of Diseases, 9th Revision, is used by many physicians for coding ailments, symptoms, and illnesses in a neat, readily understood format. They are required for certain types of Billing (e.g., Medicare), but may also

prove useful to labs that don't use the SchuyLab Billing Module. You can define your own ICD-9 codes, according to your lab's needs.

To Define or Update ICD-9 Codes

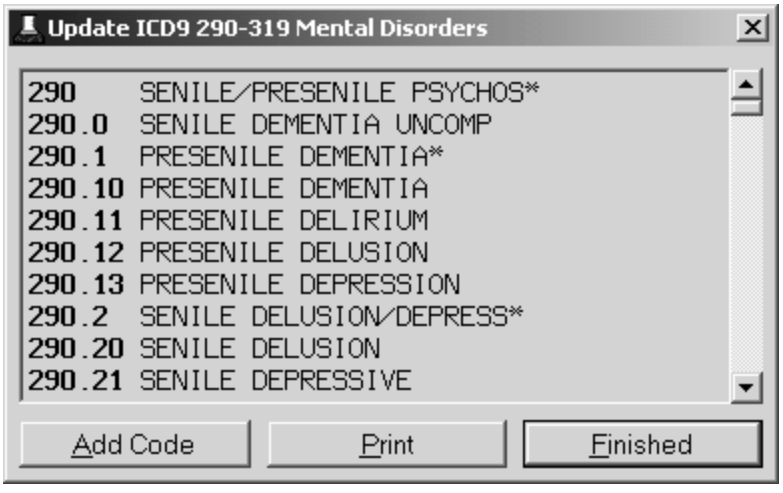
Select **F8. Tools.**
Select **Set-Up.**
Select **ICD9.**

SchuyLab displays the Update ICD-9 Codes box, listing in numerical order the grouping of ICD-9 codes by type of ailment.

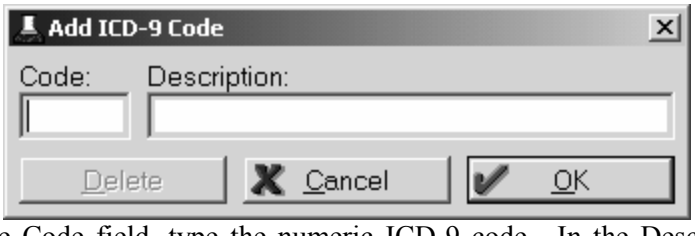


To Create a New ICD-9 Code

1. Select the group ICD-9 code to be added to. SchuyLab displays the Update ICD9 [grouping] box.



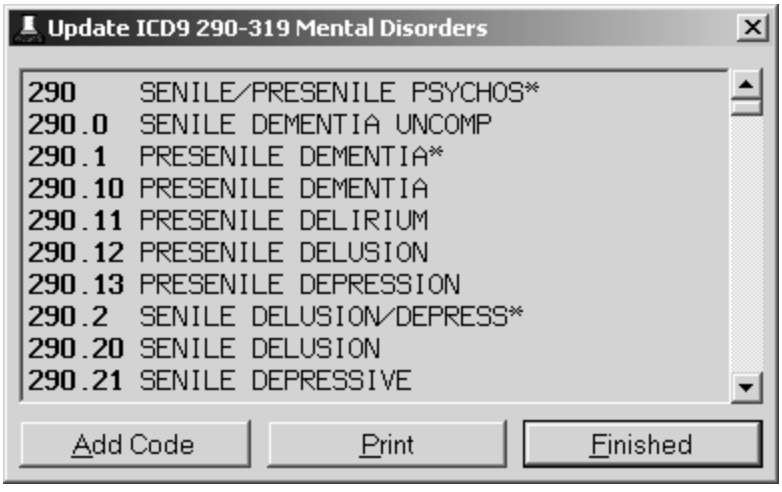
2. Select **Add Code.** SchuyLab displays the Add ICD-9 Code box.



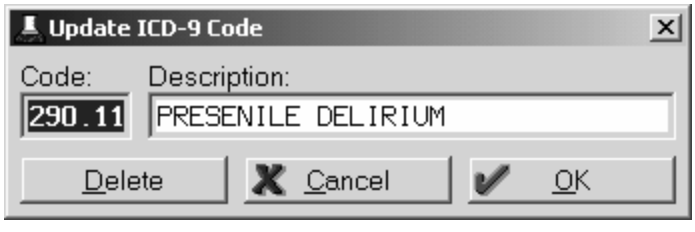
3. In the Code field, type the numeric ICD-9 code. In the Description field, type a brief description of the code.
4. Select **OK.** SchuyLab returns to the Update ICD-9 Codes box.
5. To add another code, repeat the above steps. When done, select **Finished.**

To Update or Delete an ICD-9 Code

1. Select the ICD-9 code to be changed. SchuyLab displays the Update ICD-9 Code box.



2. Select the code you which to change or delete



3. If you want to delete this code, select **Delete.** Otherwise....
4. Change the fields as appropriate. When done, select **OK.**

Default Screens

The default options allow the user to define information on patients and accessions, which will be mirrored in the corresponding fields during data entry. In other words, these screens permit you to define the defaults (if any) for your patients and specimens.

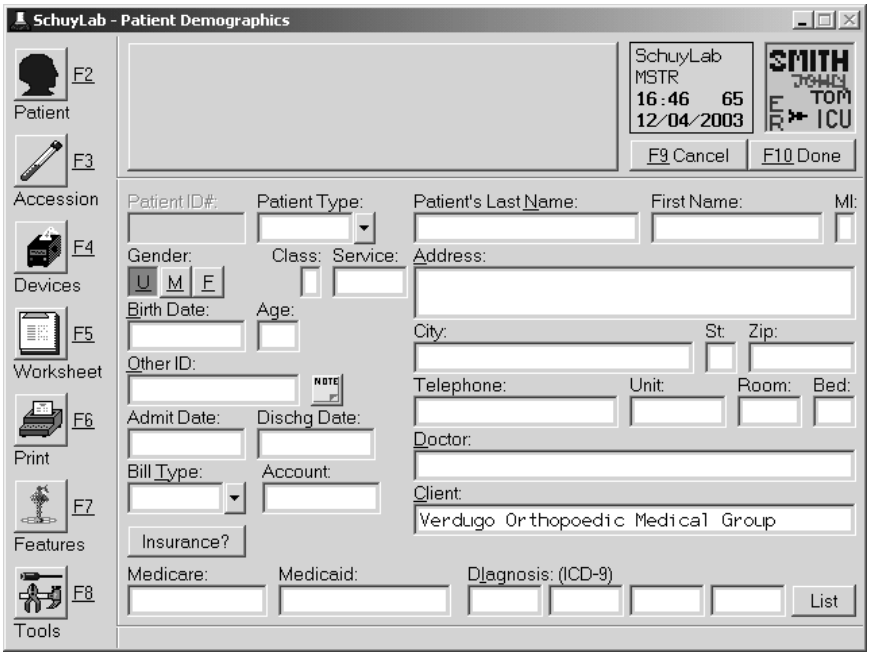
Some suggestions for the default patient field might be: defining the area code, state, and zip code for your location; defining the gender for your typical patient (very useful for, say, gynecology clinics); automatically entering the name of the doctor who provides 90% of your work.

Some suggestions for the default accession field might be: defining the typical type of specimen (e.g., serum and blood); making all specimens STAT by default.

Note that these default fields may be altered in the course of patient entry; the values are not 'locked in' but may be typed over if they need to be changed.

To Define the Default Patient Screen

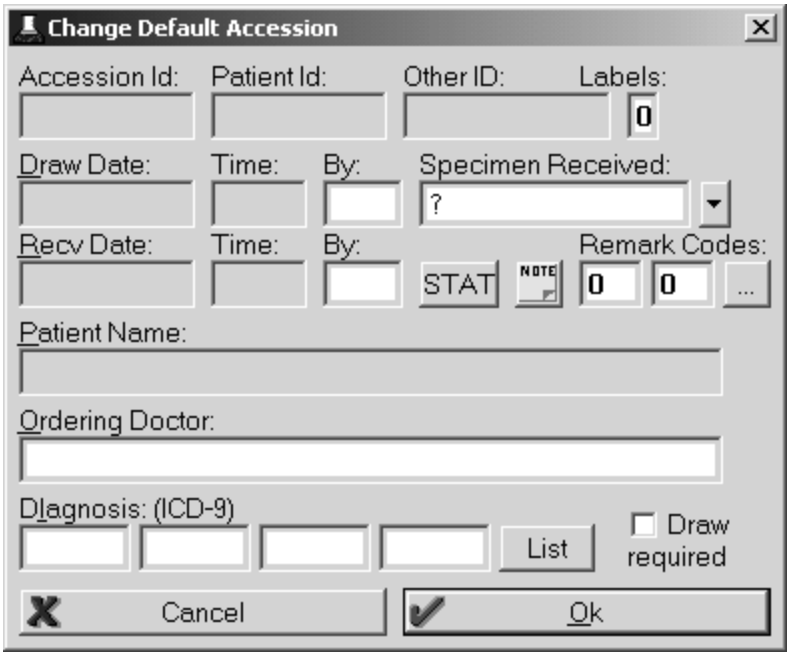
Select **F8. Tools.**
Select **Set-Up.**
Select **Default Patient.** SchuyLab displays the (default) Patient Demographics screen.



1. Select a field that you wish to predefine. Type the information in that field (or select an item from a scroll box).
2. Select another field, and proceed as above.
3. When you have completed all the fields you wish to have defaulted, select **F10. Done.** SchuyLab returns you to the Setup menu.

To Define the Default Accession Screen

Select **F8. Tools**.
Select **Set-Up**.
Select **Default Accession**. SchuyLab displays the (default) Patient Demographics screen.



4. Select a field that you wish to predefine. (The date and time fields cannot be predefined.) Type the information in that field (or select an item from a scroll box).
5. Select another field, and proceed as above.
6. When you have completed all the fields you wish to have defaulted, select **OK.** SchuyLab returns you to the Setup menu.

Cleanup

As SchuyLab is used to perform work in the laboratory, it creates files and indexes for greater efficiency in handling information. These files and indexes may be considered as 'scratch paper' which the system uses for a while. Additionally, worksheets will be created by the techs, the information on them accepted into the patients' records, and the (now redundant) worksheet left in memory. Eventually, this electronic clutter can impede the functioning of SchuyLab, causing a noticeable slowdown in processing.

Another sort of electronic clutter is the patients' reports for a given date. These are considered permanent files, since the Reprint icon in the Printing menu screen must always have access to them; they therefore take up space on your computer's hard disk drive. Eventually, after months or years of operation, all the hard disk memory may be filled, with no room for new files.

The Cleanup Database icon solves both these potential problems. First, it removes the 'scratch' copies from the system. There will be no patient information lost by this process. Cleanup will not discard any document until (1) all the results on it have been accepted, (2) a hard copy of that result has printed out on a data log function (if your lab selects that option), and (3) the tests have been billed (if the Billing Module is in use).

Second, it uses a data compression algorithm to rewrite the patient report files into a more compact format, so they take up ***much*** less space on the hard disk. Again, no information is lost by this process, and it doesn't take any longer to read the compressed files

Before using Cleanup Database, check to be sure that the Cleanup Parameters are set the way you want them. These are described in Section 8: Management, under the heading of Parameter ID Definition.

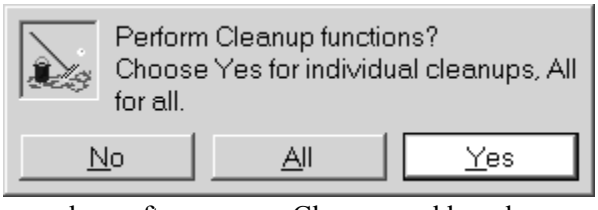
Using Cleanup

Once the parameters are set, you can begin using the Cleanup Database function. We recommend that you cleanup your database once a week; make it a habit. At the very minimum, it should be done as often as the smallest interval set in the Cleanup parameters (that is, if the smallest interval is 5 days, use Cleanup Database ***at least*** once every 5 days). If your lab has a heavy use of worksheets or is a high volume lab, you may consider using Cleanup Database more often.

To activate cleanup:

Select **F8. Tools.**
Select the **Clean-up Database** icon.
SchuyLab performs cleanup.

SchuyLab will display a dialog box like the one below, inquiring whether you want an individual cleanup (Select Yes) or just to clean up all items (completed worksheets, data logs, whatever) (Select All).



This process may take seconds or minutes, depending on how often you run Cleanup and how large your database is.

Patient Files

As noted several times, SchuyLab is not the computer on *Star Trek*. (We're good, but we're not that good.) There will be times when you'll need to correct data entry mistakes. A large category of such mistakes involve the patients' files: names, dates of birth, gender, &c. They may also involve mistakes in assigning specimens to specific patients.

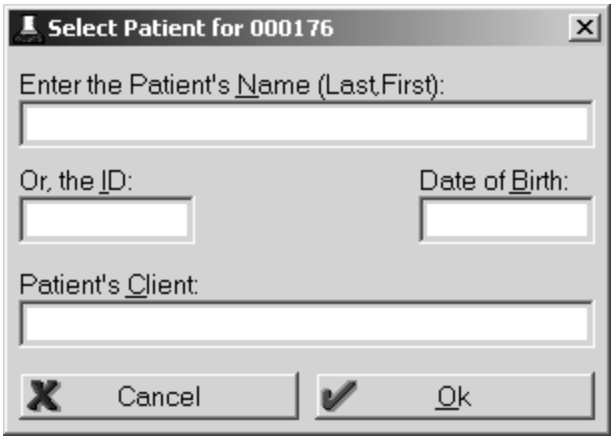
Any corrections to patient files may be done through the icons in the Patient Processing Screen, accessed through **F2. Patient** or **F3. Specimen.** There is also the Match Patients database search engine, available through **F8. Tools.** Many of these functions require the user to have a special security clearance.

Reassign Specimen

A straightforward error occurs when a specimen is mislabeled as belonging to someone else -- that is, the tube of serum entered as being drawn from Ms. Doe was actually drawn from Mr. Roe. In such a case, it is easy to transfer the specimen to its rightful owner.

To reassign a specimen

1. Select **F3. Specimen.**
2. Enter the specimen ID number to be reassigned, and select **OK.** SchuyLab displays the Patient Processing Screen.
3. Select **Reassign Specimen.** SchuyLab displays the Select Patient for [specimen ID number] box.



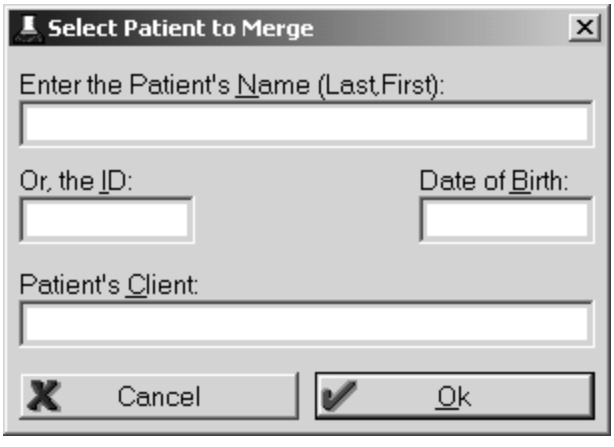
4. Enter the name of the patient to whom the specimen is reassigned, or the patient ID number if you know it.
5. Select **OK.** SchuyLab reassigns the specimen to its proper file.

Merge Patient

The second most common data entry mistake is to enter a single person into the SchuyLab database twice -- for instance, once as Joseph Smith (the first time he came to the office), and again as Joe Smith (the second, less formal visit). Two patient files can be combined using the Merge Patient icon.

To merge two patient files into a single file

1. Select **F2. Patient.**
2. Enter the patient's name of the file you wish to keep, and select **OK.** SchuyLab displays the Patient Processing Screen.
3. Select **Merge Patient.** SchuyLab displays the Select Patient to Merge box.



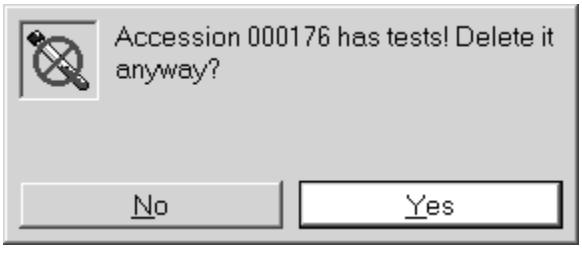
4. Enter the name or patient ID of the patient for whom the file will be merged -- that is, the file you ***don't*** want to keep.
5. Select **OK.** SchuyLab will ask if you want to keep the old patient name as an alternate. Say **Yes** or **No,** according to your lab's protocols. SchuyLab merges the two files into one.

Delete Specimen

There may even come a time when you are forced to delete a specimen from the system entirely: a specimen that never should have been entered. This is done through the Delete Specimen icon. ***Once a specimen is deleted, it cannot be undeleted;*** you must reconstruct the specimen record as though it were a new specimen.

To delete a specimen from the system

1. Select **F3. Specimen.**
2. Enter the specimen ID number to be deleted and select **OK.** SchuyLab displays the Patient Processing Screen.
3. Select **Delete Specimen.** SchuyLab displays a dialog box, informing you that the specimen may have tests, and asking if you really want to delete it.



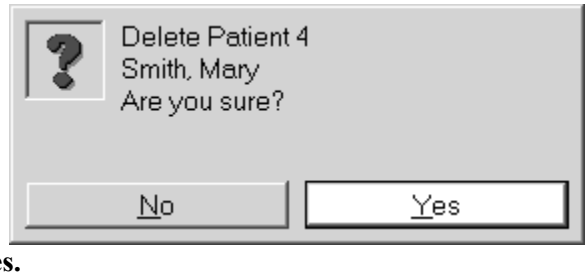
4. Select **Yes.**
5. SchuyLab deletes the specimen from the SchuyLab database.

Delete Patient

Finally, the patient file itself can be deleted. This is the most radical change that can be made to the SchuyLab database. It requires that you delete all the specimens that belong to the patient before the patient file can be deleted. We do not recommend this as a casual procedure! ***Once a patient file is deleted, it cannot be undeleted;*** you must reconstruct the patient file as though it were for a new patient.

To delete a patient file from the system:

1. Select **F2. Patient.**
2. Enter the patient's name of the file you wish to delete, and select **OK.** SchuyLab displays the Patient Processing Screen.
3. Make sure that all the patient's specimens are already deleted. Otherwise, SchuyLab will not let you delete the patient file.
4. Select **Delete Patient.** SchuyLab displays a dialog box, giving the name and patient ID number to be deleted, and asking if you really want to delete it.



5. Select **Yes.**
6. SchuyLab deletes the patient from the database.

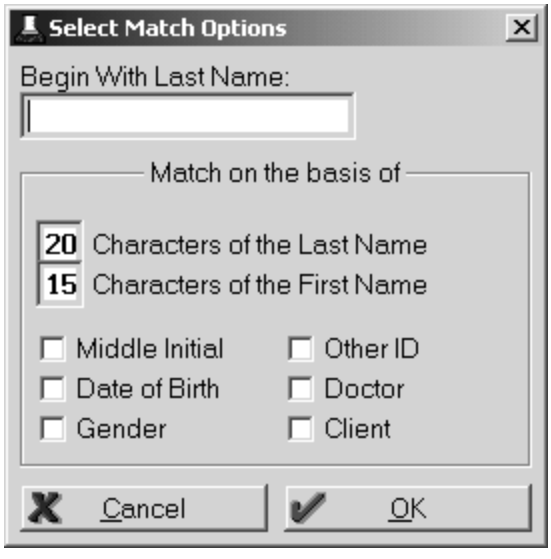
Match Patient

As mentioned above, the Merge Patient function permits you to combine two patient files. However, that presupposes you know which two patient files to combine. SchuyLab has a database search engine, called Match Patient, that sorts the patients according to the first few letters of the last and first names. It then gives you the choice of which file is merged into the other.

To use the Match Patient function

1. Select **F8. Tools.**

2. Select **Match Patients.** SchuyLab displays the Select Match Options box.



3. Set the parameters of the database search. The minimum criteria are the first few characters (the number of which you can specify; 20 and 15 are the defaults) of the patient's last name and first name. To specify the other criteria, select the check boxes next to the field in question.
4. To start the search at a specific patient name, type the last name in the Begin With Last Name field. If this field is left blank, the search will start at the beginning of the alphabet.
5. Select **OK.** SchuyLab displays the Match Patients screen when it finds a match in the database.

6. Search criteria are shown in green where they match one another. Where the two files' search criteria differ, the differences are shown in red.
7. Select one of the two buttons labeled "Merge to this patient": the left button if you want to merge ***to*** (that is, keep) the patient file on the left, the right button if you want to merge ***to*** the patient file on the right. SchuyLab will then merge the two files, and proceed to the next database match.
8. If the two files are indeed for different people who happen to have the same name (there are a lot of John Smiths in the world!), select **Next.** SchuyLab will proceed to the next database match.
9. When done, select **F10. Done.**

Common Problems
(that will never happen to you, but just in case)

Here are some of the situations that have come up in the course of doing customer support. Instead of extending the length of the answers with the technical descriptions of a procedure, we have referenced the section in the User's Manual where those explanations may be found. We'll begin with some of the simpler questions:

My AST prints out on reports as "SGOT". I want to change it to print as "AST (SGOT)". How do I do this?

Go to **F8. Tools, Setup, Test & Panel Definition,** and **Test Definition,** and select the test SGOT. In the field labeled 'Name', type in "AST (SGOT)". Select **OK.**

Notice that you only need to change the test ***name*** to change the report. You don't need to change the test ***code*** as well. In fact we recommend you do NOT change the test code. You can create a major problem if you do. [See Section 4]

I tried to change the test code for Uric Acid from URIC to UA. SchuyLab wouldn't let me do this.

SchuyLab won't let you use the same code for two different tests, or for a test code and a panel code. My guess is that "UA" is already in use as the code for the Urinalysis panel. If that's the case, then either change the code for that panel, or think up another code to use for Uric Acid (or leave it as URIC). If you don't have a conflict with Urinalysis, then you'll have to look elsewhere for the problem. You can scan up and down the scroll box to see what other test has "UA" as its code; or you can select **Test Report,** which will print you a list of all the tests in your data base. (You can likewise print a list of all your panels by selecting **Panel Definition,** then selecting the **Print** button.) When you find the source of the conflict, change its code (i.e., say **Yes** to the alias question). Now you'll have freed up the code to use for Uric Acid. [See Section 4]

My calculations don't work.

The most common mistake made in setting up calculations in SchuyLab is not getting the test codes exactly right. For example, if you have a test called "T3U" that you want to use in a calculation, and it's entered in the equation as "TU", SchuyLab won't know what to do. Don't laugh! That's the most frequently made error in calculations. Although SchuyLab will check your calculations when you first enter them, to make sure that they use valid test codes, those calculations ***don't*** get updated if you change a test code. If you have a calculation which had been doing just fine, then suddenly doesn't work anymore, you might check whether any test codes have been changed recently.
Another potential problem with calculations occurs when the test code includes characters other than letters, numbers, and the underline. This rarely causes problems -- ***unless*** that code is used in a calculation. In which case, a dash will be read as a minus sign, a slash as a divide sign, &c. If you have used a space (instead of an underline) in the test code, the calculation will stop when it reaches that space. Should that happen, change your test codes (aliasing as appropriate), then re-enter the calculation. [See Section 4]

The wrong normal range is printing out by my Triglyceride results. I've checked in the Test definition, and the range is correct there.

There are two places to look in such an instance: Go into **Test Definition** and select Triglycerides. On the Triglycerides test screen, select the button labeled **Ranges.**

Specific ranges for age, gender, and patient type are listed under the tabs marked, **Normal**, **Critical** or **Interpretive**. Is there a specific range set up which could be conflicting with what you expect these ranges to be? SchuyLab will override a general range with one that is more specific. If there's a range set up for 20-40 year old female patients, that could be the range that you spotted when you expected the standard normal range. Modify or delete your specific ranges to your satisfaction.

If you check in **Ranges** and don't find any ancillary data, but you still have an unexpected range printing out, there is another place to check. I know it sounds odd, but are you sure that you have only one Triglycerides test set up? I've seen situations where there are two tests, "TRIG" and "TRG". Everyone thinks that TRIG is what's being ordered and reported, but 'way back when the system was set up, TRG was what actually got put on the screens and panels. The point here is that you should check the other tests to see if you have any partial duplicates which are causing problems. *How do I find out if this has happened?* Print out the Test Report. This will give you a hard copy of all the tests and ranges in your data base. Examine the report for possible conflicts, and delete or modify redundant tests and ranges. Deleting a test is a very comprehensive change to make. When you delete a test, you will want to check your screens and your worksheets to insure that the correct tests are still represented in those sections. ***If you delete a test that has outstanding orders on it, alias the test so that SchuyLab knows with which test to replace the one that's been deleted.*** [See Section 4]

I can't get "Lipid Panel" to print out on my reports, but I know I set it up. When I went back into SchuyLab to check ... it was right there. But it still doesn't print. How do I get "Lipid Panel" to appear on my report?

SchuyLab has three places where tests are arranged into groups. Sometimes you're thinking of one place, but actually looking at a different section.
Remember:
"Panels" (cf. **Panel Definition**) control how you ***order*** tests.
"Worksheets" (cf. **Define Master**) set up how you ***run*** tests.
"Printing Groups" (cf. **Report Order**) determine what your ***reports*** look like.

How you set things up in Panels and Worksheets has no effect whatever on what appears on your reports. So go into **Report Order.** Check and see if you have "Lipid Panel" defined as a Printing Group. If it's not there, create it. If it **is** there, check the tests that print out under that heading. If your lipid tests are listed under that heading and everything seems in order, turn off the "Do not print duplicate reports" checkbox. Create a 'dummy' patient who has only lipid tests ordered, and print out the report. Your Lipid Panel should print. [See Section 4]

I can't accept my controls into SchuyLab any more. They used to work. What went wrong?

The name that identifies the control when it comes across the interface has probably changed. The two most common reasons for this are: 1) a change in lot number, or 2) an operator who is putting in a different name for the control at the instrument end of the interface.

Some instruments don't give you a choice in what they send to SchuyLab as a QC designation. Hematology instruments seem particularly inclined to do this. Even when you've put all the data on Lot #Q52304 and #Q52305 in the QC module, SchuyLab doesn't know what to do when an instrument that has been sending "204" (last month's number) all of a sudden starts sending "304". Dumb machine. Take a careful look at what is actually sent across as a QC designation. Write it down. Go into your QC module and establish aliases using those designations. You should now be able to accept QC. (If your Hemo instrument acts this way, you'll have to do this each time you change lot number.)

Another situation sometimes occurs when the operator ***can*** control the designation that an instrument uses. When the input is operator dependent and the operator types in "Bytrol" instead of "Bitrol", sure 'nuf -- SchuyLab won't recognize it. The easiest thing to do here is to point-and-click at the offensive "Bytrol" to highlight it, and retype "Bitrol" in its place. If the data hasn't been recognized as a control, then mark it as such by using the little 'Control' button in the upper right corner of the screen. Select **Reassign.** SchuyLab should then be able to correctly identify your control. Accept the results. (If your ham-handed tech mistypes the controls ***every*** morning, you may want to consider setting up an alias so that SchuyLab knows that Bytrol and Bitrol are the same. You can have several aliases for a single control.) [See Sec. 6 – Quality Control]

Troubleshooting

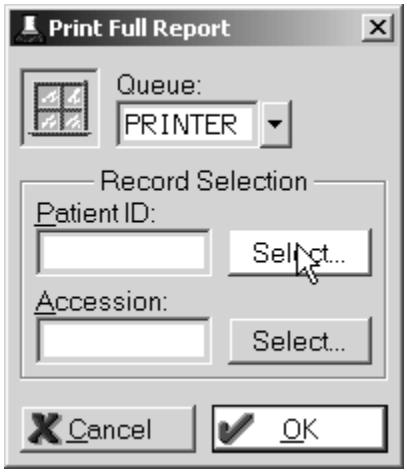
Despite everything, there will be times when the system Just Won't Work. You've asked all your technicians, you've looked here in the manual; you've even tried reading tea leaves -- It Just Won't Work. When that happens, there are still some things you can do.
First and foremost, of course, is calling the Schuyler House Technical Support Hotline. In the course of diagnosing your problem, we may ask you to use some of the troubleshooting functions of SchuyLab. The most useful of these are Full Report and Diagnose Problems, both of which are accessed through the System Tools menu screen, via the **F8. Tools** icon.

Full Report

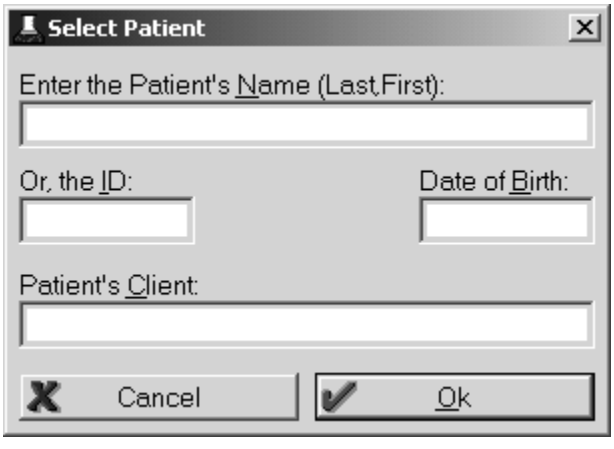
The Full Report is a complete listing of all the activity on a patient's file: for instance, what tests were ordered; what values were accepted; and the time, date, and SchuyLab user ID of each action. You can access a full report either by the patient's name, which will give you a full report of every accession in their record, or you can specify a single accession.

Print the Full Report by Patient's Name

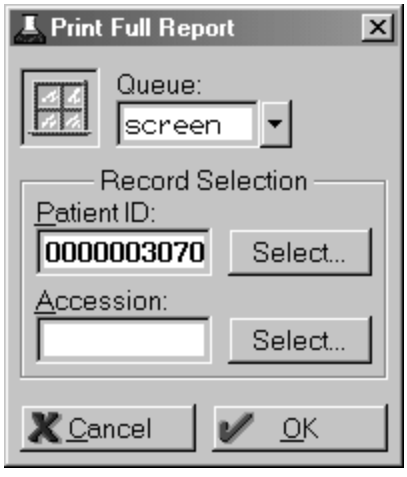
1. Select **F8. Tools.**
2. Select **Full Report.** SchuyLab displays the Print Full Report box.



3. Enter the patient's ID number. If you do not know the patient's ID number, click on the Select button to enter the patient's name (Last, First).



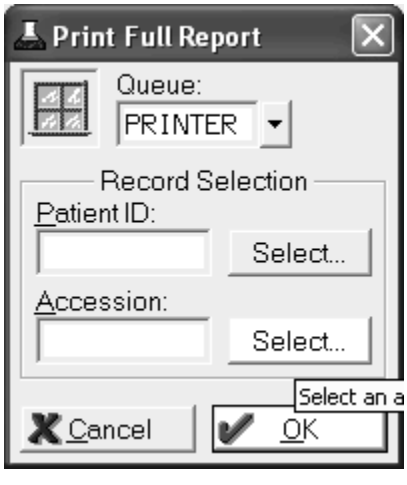
4. Select **Ok.** SchuyLab displays the patient's ID number.



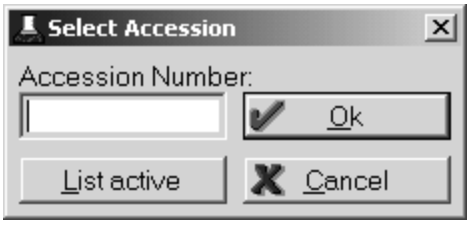
5. Select OK. SchuyLab prints the Full Report for that patient (or change the queue to view on the screen or print elsewhere).

Print the Full Report by Accession Number

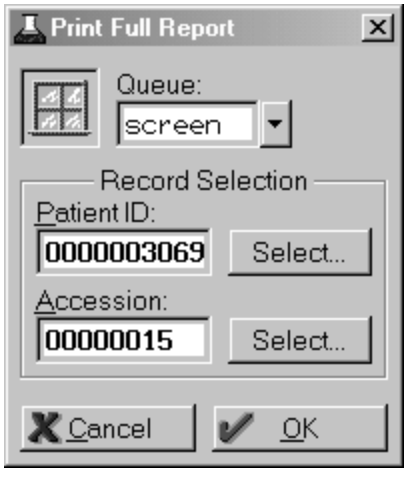
1. Select **F8. Tools.**
2. Select **Full Report.** SchuyLab displays the Print Full Report box.



3. Enter the accession number you wish to view. Or if you are not positive of the accession number you can click on the Select button next to Accession to bring up the select accession box.



Type in the Accession number or select the List Active button. When you have chosen the accession you want to look up, SchuyLab also fills in the patient's ID number.

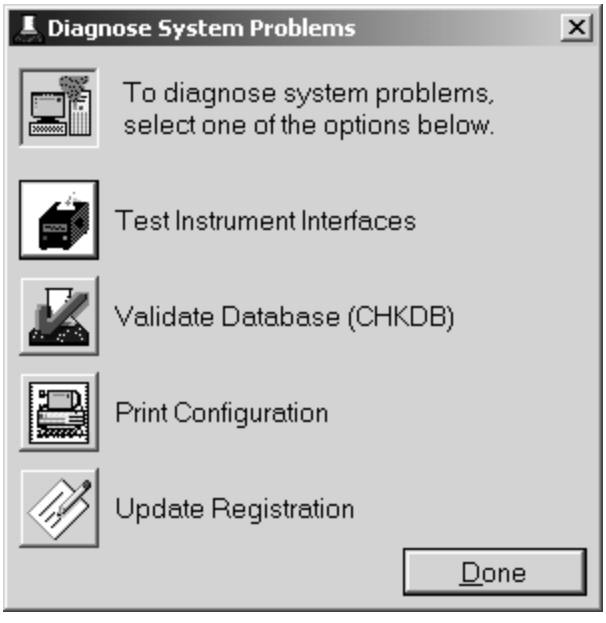


4. Select **OK**. SchuyLab prints the Full Report for that accession only (or change the queue to view on the screen or print elsewhere).

Diagnose Problems

The Diagnose Problems feature is used to help determine any number of problems you may be having with your computer(s), your instrument(s) or a system error that sometimes pops up.

1. Select **F8. Tools.**
2. Select **Diagnose Problems.** SchuyLab displays the Diagnose System Problems box.

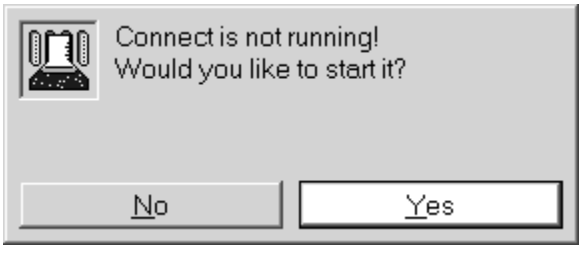


Test Instrument Interfaces

SchuyLab consists of two separate programs; SchuyLab and Connect Manger. Connect Manager is the program that enables your computer to talk to your instruments, your bar code printer or the modem for auto faxing. It monitors the data streams between SchuyLab and the instruments, and records the last messages transmitted and received. Connect Manager (or Connect) is always on the station to which the instruments are physically attached.

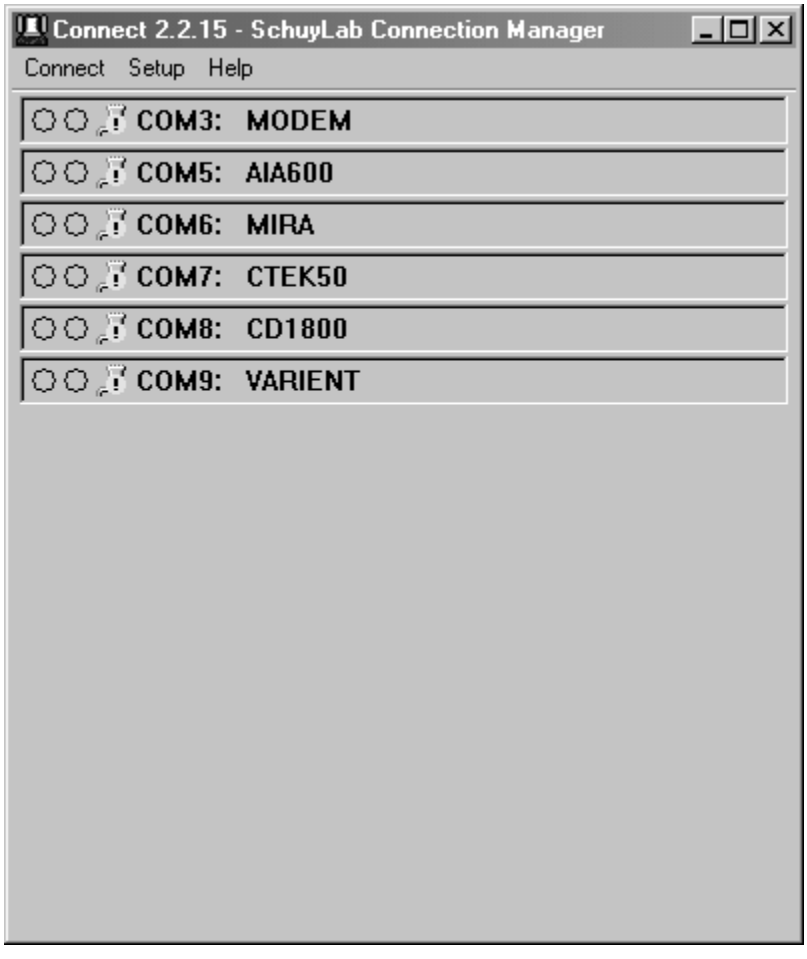
Let's pretend that you get a call from a doctor wondering why he has not received any faxes from you today, or perhaps when you go to F4, Devises, there are no results although you just ran a CBC.

1. Select the icon labeled "Test Instrument Interfaces". If the first box that pops up looks like this:

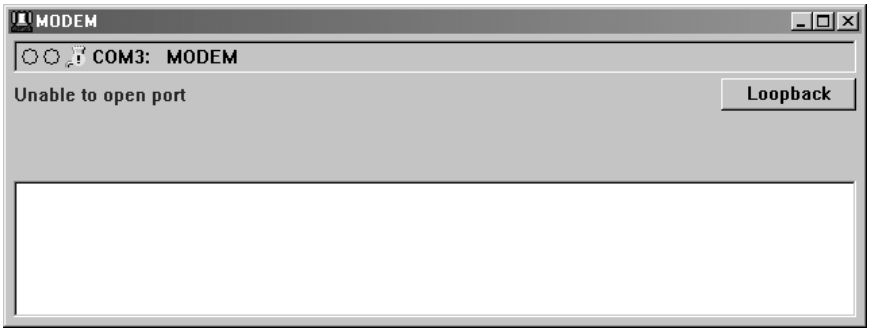


you may have forgotten to start (or re-start) Connect manager. Ninety-five percent of your instrument problems will be solved when you select "Yes". Your auto faxing will begin faxing; your bar code printer will begin spitting out the 5 sets of the same accession number labels because you kept telling SchuyLab to print, and your instruments will begin sending results over to SchuyLab.

But what if Connect is up and running and you are still having problems? Test Instrument Interface will then bring the Connect Manager box up.

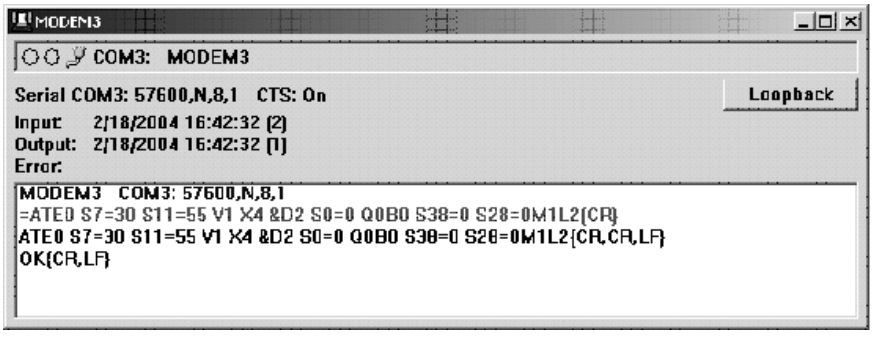


This box shows which instruments are physically connected to this station (computer). In this case, we will look at the modem only. The yellow exclamation mark shows us there is a problem. Click on the exclamation mark and it opens the Modem box.



As you can see, the message says "Unable to open port". This means that for some reason, the modem was left "open" the last time it was used. Re-boot the station to close the port.

2. If there doesn't seem to be a problem, or there is not an exclamation mark, click on the COM of the instrument that is giving you problems to open the port box. The remainder of the screen will display the diagnostic information:



Serial COM (x): Shows the Com port the instrument is connected to and gives the baud rate, parity, bits and stop bit settings on the SchuyLab port for this instrument.

CTS: Determines whether the Control-To-Send is on or off.

Input, Output: Gives the date, time and length of the most recent messages sent to and from the instrument and SchuyLab.

Error: If an error in transmission occurred, gives the date and time.

Close this box by clicking on the "X" in the upper right hand corner and **MINIMIZE** Connection Manager by clicking on the "-" box in the upper right hand corner.

3. When done, select **Ok.**

4. Select **Done** to return to the System Tools menu screen.

Validate Database

The SchuyLab program is made up of many databases, all working and linked to each other. Occasionally, something many happen to one of the records, perhaps a lightning storm in the area or a bad electrical connection, in which case SchuyLab can not connect a patient with an accession. When you select Validate Database, SchuyLab runs a special program to fix this problem. This should not be done without calling SchuyLab Technical Support first.

Print Configuration

If you have more than 1 station, or if you have recently added another workstation, you may have trouble with each station "talking" to each other. In this case SchuyLab Technical Support will assist you in printing out a Configuration Report and faxing it to them for evaluation.

Update Registration

Schuyler House has implemented a registration program with SchuyLab. The only time you should have to update your registration is if we have made changes to your system, if you add another station, or any other major program change. In either case, you would be prompted by SchuyLab, when you sign on to call Tech Support for an update.

Backup

Backing up your patient database (or, more succinctly, doing backup) is simply a form of insurance, to keep your records safe in case of accident. For that reason, backup should be done ***every day,*** and a copy of recent data kept off site. You should have several media forms (zip disks, cds, tapes, flash memory, etc.) for backup purposes, and never use the same one twice in a row (if the system crashes while you are doing backup, you've just lost your most recent set of data).

Let me tell you a true story: Once upon a time, there was a lab. This lab had six backup tapes. However, for some reason or other, for several months they had been backing up every day on the same tape. One day their computer's motherboard started going bad. Seeing that something was going wrong, they hurriedly grabbed up a tape (yes, the ***same*** tape) and began a backup on it. At that point, their

motherboard went bonkers and wrote every sixteenth bit in the database to "1". It did this to the hard drive ***and*** to the backup tape, effectively trashing all of their data for the last three months. They were very sad. Now they use many backup tapes in sequence. They learned from their mistake. You should, too.

Backup is not done in SchuyLab, but from your desktop. Schuyler House supplies a media backup batch file program for the purpose and we usually have 2 versions of backup for you; Daily and Full. Both versions can be saved to a zip disk or you can use any CD burner program to burn a fresh CD each time. Even if you have a back up program for your server (if your SchuyLab is attached to a network) we **HIGHLY** suggest that you still make a daily backup of your SchuyLab database via our programs (NOTE: SchuyLab database CANNOT be read except by a SchuyLab program). Schuyler House Technical Support can help you set up where the batch files are copied to so you can save to a zip disk or save to a file to burn to a CD later.

Backing up on the zip disk

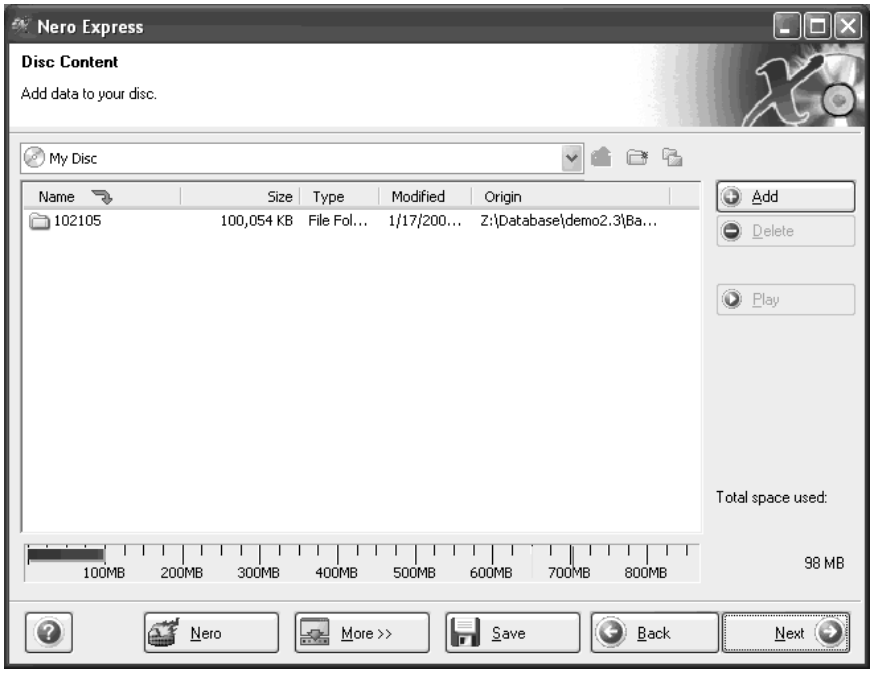
1. Go to the station that has the zip disk drive. There should also be an icon on this station called "Backup". Put your zip disk into the drive slot, double click on the icon and SchuyLab does the rest.
2. When the backup is complete, you will be prompted to remove the zip disk. Please remove the disk and place it in a safe place.

Back up to a CD:

You may also save your backup information to a CD Rom if you have a CD writer / drive in your computer. Schuyler House does not recommend any particular CD Program as they all do the same basic thing. You will first have to run the backup batch file and have saved it to somewhere in your SchuyLab folder. Again Schuyler House Technical Support can help you set up where the batch files are copied to.

As with most window icons, double click on the CD Program of your choice, we have named ours CD BACKUP.

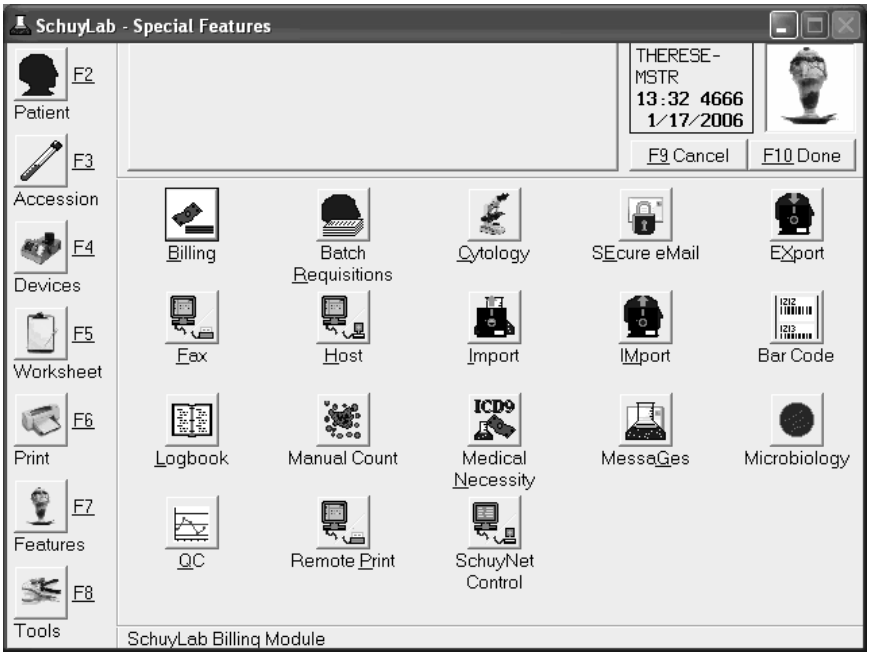
You will want to make a data CD, to possibly share or archive your computer's files, documents, pictures, spreadsheets, etc. Under "select Source Files", scroll down to the SchuyLab folder and "click" on it. Click on the ADD button and the Backup folder is added to the project list. Click on the Red button to start burning.



Restoring Data

In the event of catastrophic failure, such as your motherboard going bad or your hard disk crashing, Schuyler House personnel can restore your system and all the data up to and including your most recent backup. Do not attempt to do this on your own. Call us: Our first task is to troubleshoot the cause of the failure, and then to repair or replace the faulty hardware component(s), then reload your database. Schuyler House will answer emergency calls 24 hours a day, 7 days a week.

Have you thought of how you are going to send the results to the doctors? Or, how you plan to bill the various clients or medical groups for the tests you have run. Your SchuyLab system comes with the QC module but other features are available. From the main menu screen, click on F7 Features to see what features your lab already has.



To find out more about all these features, see the appendix at the back of this book.

Reporting the Results

Whether you plan to mail or fax the results over to the patient's doctor, SchuyLab has a number of ways to do so. Following is just a brief description of those features.

Auto Faxing

The SchuyLab Fax Module will fax patient reports directly from SchuyLab to your clients' fax machines. It can be set up to do this automatically when a report is final, whenever you print in Batch; or you can fax a single report at a time.

Remote Printing

Your system is set up with its required printers, reports and invoices are printing nicely to the correct locations, and all is right with the world. Now, you need to print something from your computer station to the lab next door, the boss's office across the street, or a client across town. That's where Remote Printing comes in. Much like Faxing, you can print when the patient's report is finalized, when you batch print or manually send it to the remote printer queue. Specific hardware (printers or printing attachments) is necessary as is a dedicated phone line.

How to Bill with SchuyLab

SchuyLab offers you a number of ways to bill by using paper, electronically or by exporting the information to another management system.

Billing

The SchuyLab Billing Module is an optional feature of the SchuyLab system. What makes the Billing Module special? It permits the user to bill the procedures ordered for the patients -- without having to enter the patients' names and tests a second time. The information entered on the patient during the course of laboratory analysis automatically becomes part of the billing record: name, patient ID, doctor's name, and of course the tests and procedures performed. Yet at the same time, the Billing Module is sufficiently independent from the laboratory setup that special pricing or billing protocols can be inserted painlessly, without interfering with the lab tests themselves.

Exporting Medical Information

EXport

SchuyLab's patient database is kept in a proprietary format, which generally can't be interpreted by other LIS or MIS systems. The SchuyLab Export function was devised to translate patient records (demographics and test results) into other formats, and write those records to a file. The file can be on a diskette, on your computer's hard drive, or (if your station is networked) on the network server's drive. If you save to a diskette, the diskette can then be taken to another computer, and the results read in.

Other Features

Batch Requisitions
If your SchuyLab is a multi-station network, and your specimens tend to arrive in large batches, one or two times a day, you will often have numerous techs entering the requisitions simultaneously. Batch Requisitions streamlines large-volume, multi-tech specimen entry.

Import
This is generally a manually triggered utility that a site can use to import patient demographics from another system on a daily or weekly basis. This is used in cases when the site decided it is not worthwhile to establish a dynamic interface.

IMport
When we install a SchuyLab system at a new site, the customer sometimes has a prior LIS or an office system that has the historical records of his work. If the format of the other system's records is co-operative, Schuyler House can do a one-time data dump to bring those records into SchuyLab.

Barcodes and Labels
If your major analyzers can read barcodes and you have a substantial specimen load, the Barcode module will increase both your efficiency and the quality of your patient results – perhaps more than any other single module. Barcodes increase specimen integrity by improving the readability and accuracy of the labels and diminish tech time and operator error by allowing host query by the instruments. You should verify that your instruments have the capability to read barcodes before you decide on this module.

QC
Maintaining Quality Control is a part of the work you do every day in the lab. You need to track the set values of any given test and, on occasion, print out these values. The QC module, which is a standard feature in SchuyLab, can do this for you and more. See the Daily Operations section of your SchuyLab manual for more details in setting up and using QC.

Medical Necessity

Now days it is important to know which tests the various government agencies will pay for and those they won't. Medical Necessity is designed to help catch these mistakes, alerting you to tests and diagnoses that have nothing to do with one another, and allowing you to check and see if you have entered the ICD-9 code correctly. It is designed to advise you of potential problems before the Medicare claim returns, denied.

Microbiology

SchuyLab's Microbiology feature has been enhanced for smoother operation and increased entry of results. It permits the user to define the organisms that may be entered for any bacteriological sample. Sensitivities are now custom tailored to each organism. Results are entered for the culture, the organism, and the antibiotics, and fully annotated in each instance. Finally, we have removed the upper limit on the number of organisms that may be identified and reported on a single specimen.

CytoloGy

The Cytology Module offers a demographics style report with the ability for entering the interpretative ranges based on the Bethesda System for reporting cervical cytology. It offers a report that will monitor and provide statistics for those aspects of Pap Smear testing which need to be monitored for legal and technical purposes.

SchuyNet Control

The Internet is the contemporary way to speed laboratory results to your doctors. SchuyNet allows your doctors to access their patients' laboratory reports as soon as the lab has released the results. Wherever your physician client is, he can log onto a secure connection on any PC and review his most recent lab data – or look up prior information.

MessaGes

SchuyLab Text Messaging allows the users on a SchuyLab system to send messages to one another. Messages can be sent to all users, or to specific individuals. It's not e-mail – it only works within the SchuyLab system, on SchuyLab stations within your lab – but it works similarly to e-mail.

Appendices

Appendix: Barcodes and Labels

Positive patient identification is necessary if the results obtained by the laboratory are relevant to a patient's prognosis. Each time a sample is relabeled, aliquoted, or manually identified there is a chance for error. Primary tube analysis of bar-coded samples provides the best system for achieving an unbroken linkage between the test results and the patient who actually provided the specimen.

In addition to patient care, using barcodes in a laboratory can save personnel time measured in FTE's. Also, many instruments of modern design do not function well without bar-coded tubes; laborious 'work-arounds' are necessary if technologist attempt to run these instruments without barcodes.

What is a Barcode?

The standard UPC barcode that you are accustomed to seeing pasted to the apple you are buying at the grocery store is made up of black and white parallel lines. These lines encode digits in blocks of seven units; adjacent lines (and white spaces) of the same color merge to form 4 different widths of line (or space) thickness. These lines of varying width comprise the barcode that you routinely see. (There are other barcode systems using dots and concentric circles, but the discussion of these is beyond our scope here.)

All that is contained in these barcodes are the numbers and letters of an identification sequence. In laboratory work, this sequence is usually the Accession number, though it can also be the Patient ID. The barcode does *not* contain the patient name, the list of tests ordered, or any other information. That information can be transmitted as a result of a query based on a barcode, but it is not in the barcode itself. The information content of the human-readable portion of the barcode label changes from format to format; the content of the barcode itself stays the same (checksums aside – more on that later).

(NB: There is a reason for using this method: If the barcode itself contains testing information, this information cannot be easily be changed. For instance, if the barcode were to contain the test 'Glucose', then you would be in trouble when the doctor added on the rest of the CMP. By just using the barcode to contain the Accession number, "42", then the information linked to that number can be altered at will – "42" could mean just a Glucose one minute, and a whole CMP the next. This allows for the dynamic flexibility needed in a laboratory environment.)

Laboratory use of barcodes and labels

The automatic generation of labels, with or without barcodes, is typically used by a laboratory in one of three ways, depending on their individual needs and workflow.

Labels only, no barcodes

In this instance, the laboratory has chosen labels for the sake of positive patient identification and legibility. The lab does not have any instruments that can make use of barcodes, or perhaps they are a specialty lab that performs exotic manual tests. Nonetheless, they have had experience with trying to read hand-written labels, and the lab has decided to have SchuyLab print human-readable labels.

Barcodes for Unidirectional Instruments

Many instruments, archetypically hematology instruments, can read a barcode and transmit it with the test results. These instruments generally perform a single test or panel, so there is no selection of test options. In this case, barcodes substitute for the tech standing next to the instrument, typing in accession numbers: the tubes are placed in a rack, and the test(s) are performed as the barcodes are scanned by the instrument.

Barcodes for Host-query instruments

Barcodes come 'into their own' with a host-query instrument, because in these cases the barcode substitutes not only for the time the technologist stands by the instrument, typing in numbers, it also makes it unnecessary for the tech to send a worksheet to the instrument, or otherwise program it with orders. Instead, the instrument reads the barcode and 'asks' SchuyLab what tests should be performed on that specimen. SchuyLab answers with a list of tests; the instrument performs those specific tests and transmits the results back.

General information on using Barcodes

The placement and orientation of the barcode label on the tube has some specific requirements. Unfortunately, CLIA and your facility may have additional requirements, which can make it difficult to make everyone happy. If labels are printed subsequent to the patient being drawn, slightly offsetting the barcode label, so that the hand-written label partially shows beneath it, can satisfy all parties. If the labels are printed prior to the phlebotomy, then the phlebotomists are usually asked to initial the label. Please check the regulations of your facility and licensing agency before setting a policy for the placement of the label.

In order for an instrument to read the barcode, you need to orient the barcode longitudinally on the tube. Hold the tube such that the open end points left. Hold the label so that you can read the printed name and information in a normal fashion. Maintaining the relative positions of label and tube, adhere the label to the tube. (Don't laugh: we have had instances where the barcode didn't work because the techs were applying the labels 90 degrees off the proper alignment.)

If your instrument has trouble reading the barcode, look to see where the barcode reader is positioned in the instrument. Watch it as it reads, or tries to read, a barcode. Often you can see a red line where the laser is scanning the tube. Do you have the barcode placed too high on the tube? Too low? If the barcode reader on that instrument has not been used before, it may need cleaning or adjustment.

Some instruments are very particular about the amount of 'white space' they need around a barcode. 'White space' is the blank space immediately before and after the barcode. If you have selected a long SchuyLab Accession number format, and you notice that the barcode fills the entire label, from edge to edge, you may have a problem with some instruments being able to read the barcode. Test for this by under-lapping a label before and after a test label that has a barcode on it. Make sure you have about a quarter of an inch white space before and after the label. (You can always put some white-out where the labels overlap, to make sure the edges are not read as a 'bar'.) If the instrument can now read the label, you can switch to a barcode format that provides more white space, get bigger labels or select a smaller, more concise, format for your Accession number. (Fortunately, SchuyLab has a variety of formats, and it is easy to change. Please contact Technical Support before you do this, since changing the format of your Accession number could have consequences to other aspects of your laboratory work.)

Changing your Accession format or buying bigger labels could be an inconvenience to your work or finances. What else could you do? You could switch your barcode format from ‘checksum' to 'non-checksum'.

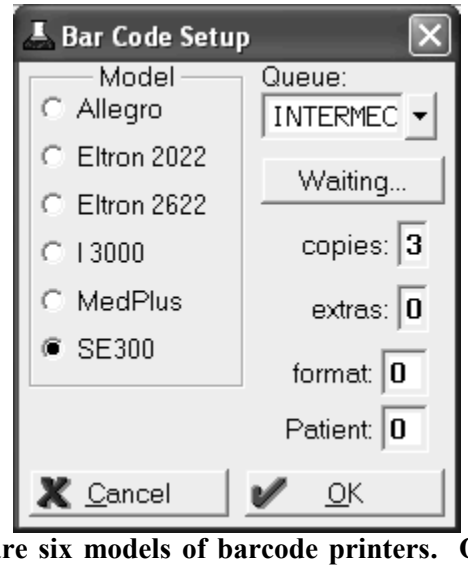
Looking at the Formats (below), you will notice that (almost) every format comes in two 'flavors': checksum and non-checksum. What does that mean? Checksumming is a method of verifying the digits in an accession number. Let's say that your accession number is 123456. That number, checksummed, could be 1+2+3+4+5+6= 21. But "21" has two digits…let's add them together: 2+1 = 3. Your checksummed accession number then becomes 1234563. (This is a very simple example of a checksumming algorithm.) If the instrument and SchuyLab are both set to 'checksum' the accession numbers, then they will both look for that "3" at the end of the accession number. If they don't find the correct number, then they know that something is wrong and that the number has been mis-scanned.

Obviously, both the instrument and the LIS must 'agree' on whether or not checksumming is being used. Otherwise, there is a legitimate question as to whether the Accession number is "1234563" or "123456 with a checksum of 3". Some

instruments can only read unchecksummed numbers; others always assume checksums are in use; most can be set either way in the instrument setup. Set up all of the instruments in your lab to read the same format – obviously, if one instrument can only read (for example) checksummed barcodes that will be the controlling factor in your decision of what format to use.
If given the option (your instruments can handle checksumming, and your accession number format is not too long), you should select a format that is checksummed – it provides greater accuracy. If your barcode is perilously near the edge of the label, though, consider going to the non-checksummed version of your barcode format.

SchuyLab's use of Barcodes

The Setup screen for barcodes is found in F7 Features. Select the Bar Code icon (this will be present only if your lab has opted for this feature). SchuyLab displays the Bar Code Setup screen. This screen shows system-wide options for the barcode feature ***except*** the Queue entry, which shows the configuration of the station you are at.



Model **There are six models of barcode printers. Of these, the two that Schuyler House actively supports are the Allegro (also called the Fargo-Allegro, Datamax, and Intermec) and the Dymo SE300 (also called the Dymo SE300). Please use the radio button to select your barcode model. This sets the model for your entire system: you cannot mix models of barcode printers (i.e. Allegro and SE300) on the same system.**

Queue **When your Bar Code Feature is installed on your SchuyLab, a barcode printer is configured on a port on your PC. At that time, a Queue is created that matches the name of that individual barcode printer. In addition, each individual workstation**

(whether or not it has a barcode printer physically attached) has a queue selected under the Bar Code icon in F7 Features: That is the queue to which all of the barcodes generated on that station will print. Click on the Waiting button to see if your barcodes are being generated into this queue. For more information on print queues see Sec. 7 – Reports and Printing.

Copies **This is the default number of labels that will print out per Accession. The default number of labels printed is determined by the lab; but the individual tech can override that number during accessioning. The format of label also influences the number of labels printed. If your lab has selected "3" as the default number of labels to print each time a new Accession is created, SchuyLab could print 3 labels, three labels for each test ordered, 3 labels for each department, or 3 labels for each sample type. All of these are legitimate interpretations of "3", and depend on the format of barcode label you have selected.**

If more labels are needed in the future, barcodes can be reprinted by returning to the Patient Processing screen, selecting Change Accession, and entering the additional number of barcodes in the Label field.

Extras **If you need a few extra labels printed, with just the accession number and other info, but not specified for a sample or suffix, (and assuming that you are using a sample/suffix type label format) you can set the default number here. This is NOT for a single accession, but for all your orders.**

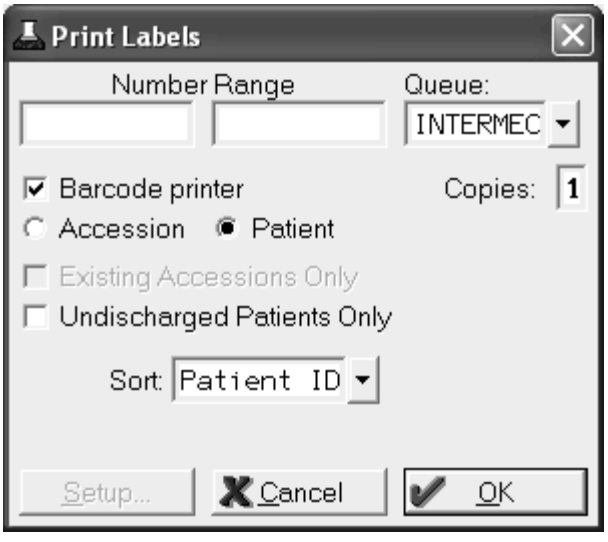
Format **SchuyLab lets you select one format of barcode for your entire system. If your laboratory selects Format 24, then all stations print out barcodes in Format 24.**

Barcodes are printed at the time an accession number is created, unless the barcode format selected is one that has the tests listed on it. In that case, SchuyLab waits until you have ordered the tests and pressed F10 Done – then it prints the labels.

Patient **So far, we have been describing barcodes that print when a new Accession is entered. SchuyLab also has the ability to print our Patient based barcodes – which is to say, barcodes that reflect the Patient ID number rather than the Accession number.**

These barcodes can only be printed through the Print Labels icon in F6 Print. Select the "Patient" option using the radio button, and the range of Patient ID's. The print output can be limited to Undischarged Patients by selecting that checkbox. The sequence

in which the labels print can be modified by the Sort list (Patient ID; Name; Sex, Name).



Barcode Formats

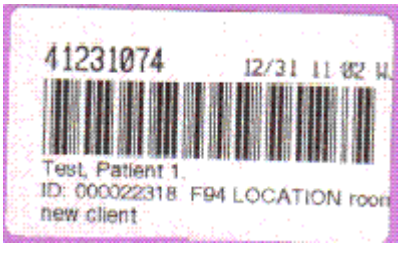
Checksum

Format 0

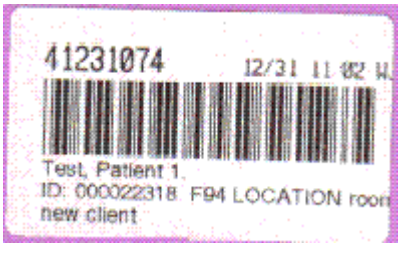
Non Checksum

Format 1 (no barcode, list of tests)

Format 2



Format 3



Format 4

Format 5

Format 6

Format 7

Format 8

Format 9

Format 10

Format 11

Format 12

Format 13

Format 14

Format 15

Format 16

Format 17

Format 18

Format 19

Format 20

Format 21

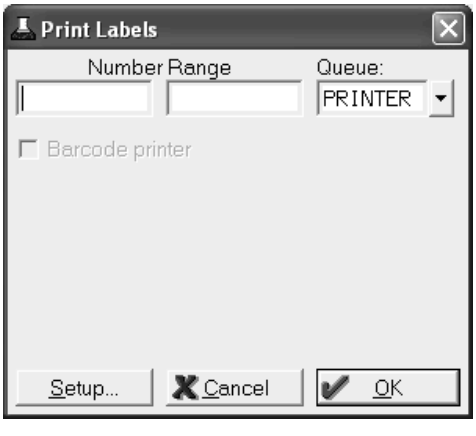
Labels

There will be times when you do not want a bar code label, or you may not have the bar code feature. You can still print labels with the information you want and in the amount you want.

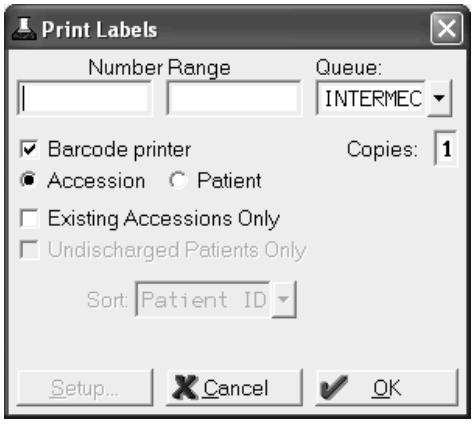
Select **F6, Print**
Select **Print Labels**

Depending on whether you have the feature or not, you will see one of the following screens

Without Bar Codes

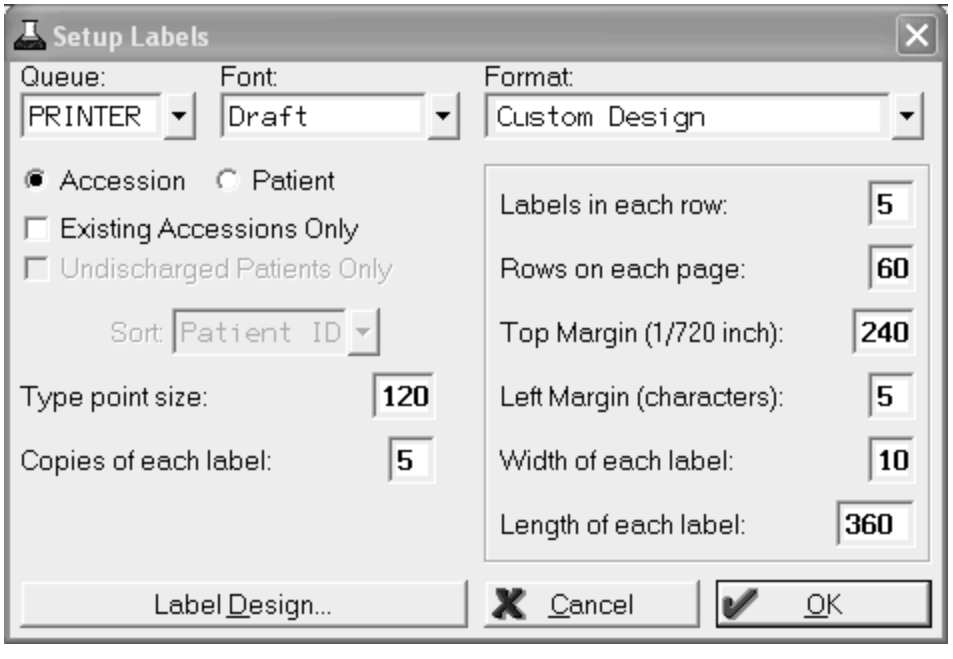


With Bar Codes



If you have the Bar Code Feature, unclick the Barcode Printer box and the box will look like:

Select the 'Setup…' button;



Queue **If you are printing labels you will need to set the printer you want to print to.**

Font **You can set the font to use on these labels, either default (or what is already set for your reports) or change the fonts to Courier, Sans Serif, Roman and more. Click on the arrow and**

	scroll down to choose the font to use.
Accession	**If you want to print an accession range, click this box. When you do, you open the** Existing Accessions Only **option (it is no longer grayed out).**
Patient	**If you want to use the patient ID as the range, click on this box. When you do, you open the Sort option (it is no longer grayed out). If you are printing by Patient ID, please note that the accession number will** NOT **print on the label.**
Existing Accessions Only	**This will enable you to print labels for** ALL **open accessions. That is, any accession that has tests ordered on it. This way, you can enter a wide range of numbers and SchuyLab will ignore any accession number in that range that doesn't have a test on it.**
Undischarged Patients Only	**This will enable you to print labels for** ALL **in house patients That is, any accession for a patient that has** NOT **been sent home (i.e. they are still in one of the hospital beds). This way, you can enter a wide range of numbers and SchuyLab will ignore any patient in that range that has gone home (this works especially well for hospitals).**
Sort	**If you are using the Patient ID as the range, you can sort the labels by a variety of ways: Patient ID, Name or Sex/Name.**
Type Point Size	**By changing the type size, you can get more (or less) information on each line of the label. Simply type in the number you want. The default is 120 (which is about a font size 12).**
Copies of each label	**Type in the number of labels you want printed.**
Format	**You can design custom labels or choice from one of the many Avery (or equivalent) type label already set up.**
Labels in each row	**If you choose to design your own labels, set the number of labels that will be printed across the page.**
Rows on each page	**If you choose to design your own labels, set the number of rows of labels that will be printed down the page.**
Top Margin	**If you choose to design your own labels, type a number here to move the start of the printing down from the top of the label (**NOT **the top of the paper).**

Left Margin

If you choose to design your own labels, you can specify how indented the printing starts for each label.

Width of each label

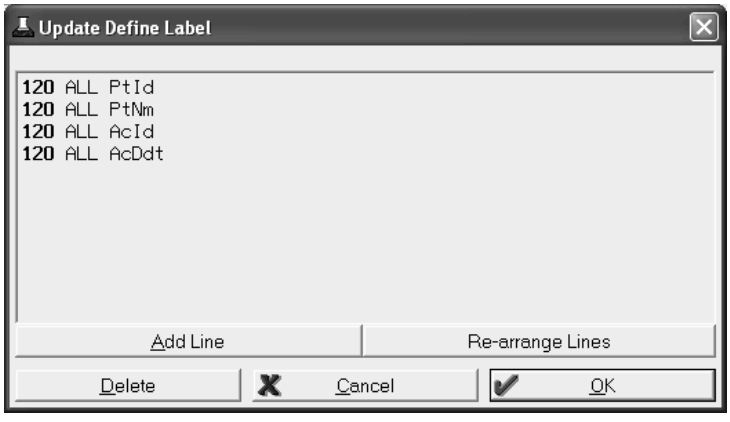
If you choose to design your own labels, this will determine the maximum characters you print on each line of the label.
NOTE: **SchuyLab will** NOT **give you an error message if the amount of information you want on that line is too much for your label size (i.e. if you have set 25 characters as the width, but your doctor's name is 30 characters, the doctor's name will run over into the next label).**

Length of each label

If you choose to design your own labels, this will determine the maximum lines you print on each label. The scale for the length of each label is 720 = 1 inch.
NOTE: **SchuyLab will** NOT **give you an error message if the amount of lines you want is too much for your label size (so if you have 360 in this box, that gives you a label about ½ inch long, which would be about 3 lines of information. Any more than that and you will print on the next label below).**

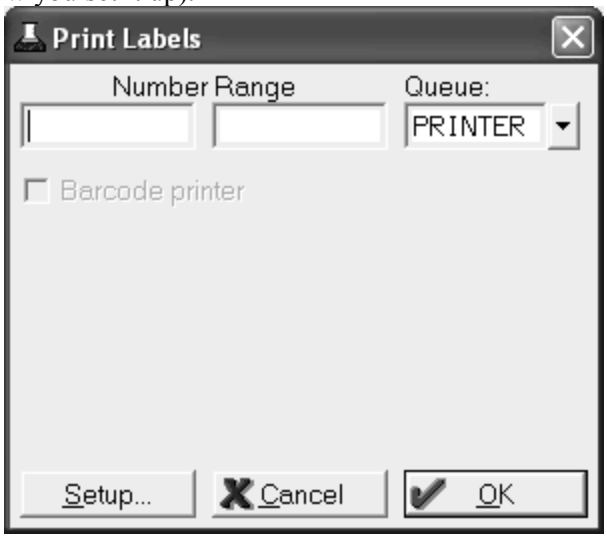
Label Design

Depending on whether you want patient information on the label, or just print a series of accession numbers for the day, you can determine what is printed and where. When you click on Label Design button you may see a familiar screen;

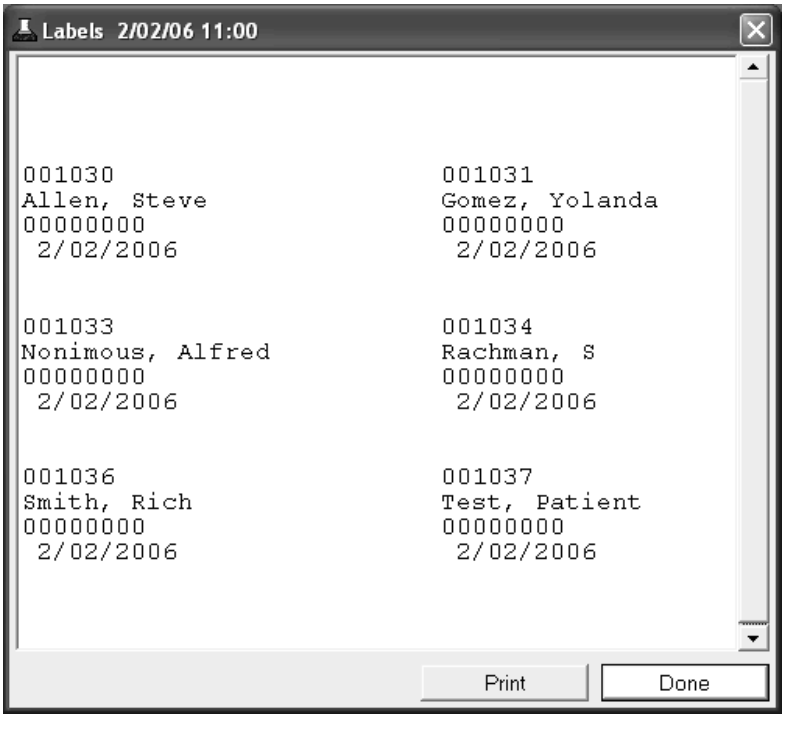


You can then set up your labels, much like setting up a result form (See Sec. 7 – Reports and Printing for more information). Your limitations are the size of the labels you are using.

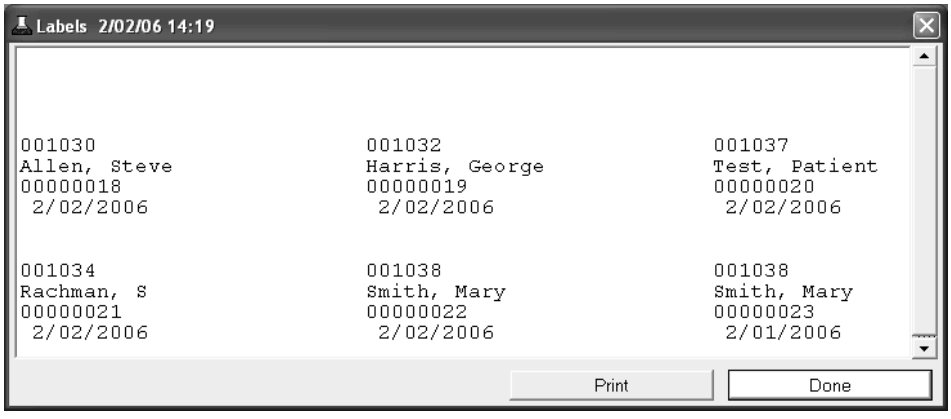
After you have set everything up it's very simple to print out the labels you need. The number range will either be the range of accessions or range of Patient ID (depending on how you set it up).



If you have chosen to print by Patient ID (and marked **Undischarged Patients Only)**, your labels may look something like;

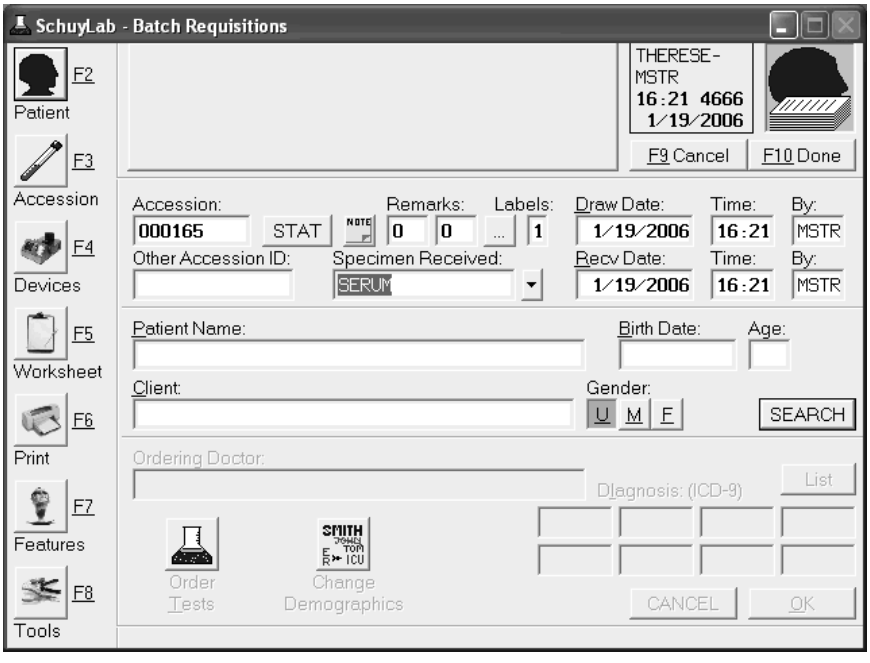


Whereas the accession label (with **Existing Accessions Only** marked) may look like;



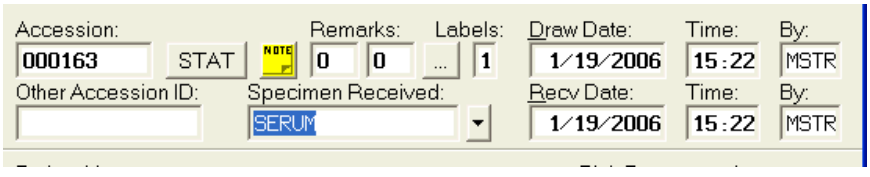
Appendix: Batch Requisitions

Like Gaul, the Batch Requisition screen is divided into three parts. The first part is specimen information which is occasionally changed. The second portion is information which defines the identity of the patient, and the third division is information which is filled in after the patient's identity has already been established.



Let's go over the sections individually:

The Top Section



Accession **It shows the number which will be given to the specimen you are currently entering. The number in this field will automatically advance to the next specimen number until you reach the end of the batch of numbers you are entering.**

STAT **Select the** STAT **button if the specimen you are entering is a**

	STAT. This will move this specimen to the top of any worksheet it may be on and print "STAT" in bold on a bar code label.
Note	**The Note icon in this section of the screen is used to write comments on this particular specimen.**
Remarks	**Are frequently used "canned" comments that should refer to this specimen. Each code consists of a message which is associated with a number.**
Labels	**If your lab has a label or bar code printer, there will be a field marked "Labels" in the first section of the screen. The number in that space indicates the number of labels that the label/bar code printer will produce for this specimen. The labels are printed either when the OK button is pushed on the Batch Entry screen or when** F10. Done **is pushed after the tests are ordered on the specimen, depending on the configuration of your system.**
Draw Date, Time, By	**Will contain the current date, time, and user initials when you enter the Batch Entry screen for the first time. From that point on, it will 'remember' the data you entered in those fields from the previous specimen. If you override the contents of the fields, SchuyLab will 'remember' the new information, and so on.**
Recv Date, Time, By	**contain the current date, time, and user initials when you enter the Batch Entry screen for the first time. From then on, they 'remember' prior entries. If you clock in a batch of specimens just before midnight, these fields will continue to show the date from the day the specimens were actually received in the lab, rather than automatically changing the date when midnight rolls around. They continue to show the 'remembered' date until either you change it, or you exit the Batch Entry feature.**
Other Accession ID	**Not all labs make use of the "Other Specimen ID" field. Use this space to record the number given to a specimen by its source facility. It's OK to leave this field blank.**
Specimen Received	**The box marked "Specimen Rec'd" is both a list box and an entry field. Select the arrow to choose from among the contents of the list box, or type directly into the field.**

The Middle Section

This is important: The information you enter in this section is what the computer uses to establish the identity of the patient. ***In this section, enter all of the information that you are sure of; do not enter any information you are not sure of***. Let me give you an example- If you have a patient, Peter Wachowski, and you aren't really sure of his birth date, but you think it says "12/26/52" and you put in both of those pieces of information, the computer will search for a patient that matches both criteria. If it fails to find an exact match, it will assume that this is a new patient. If you just put in the name "Wachowski, Peter", then it will search for all of the people by that name. Maybe it will find a Peter Wachowski who was born 12/26/57! Then you use ancillary information in Patient Demographics to confirm that this is indeed the same person.

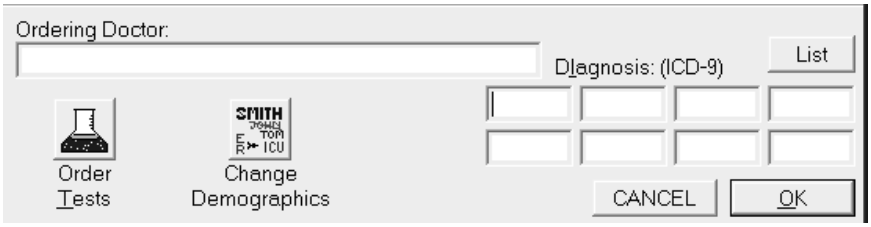
Age, **Birth Date.** SchuyLab calculates the age from the date of birth. Enter the age only if the date of birth is not available.

The middle section also contains a "Client" field. Enter the name (or the number) of the facility that sent the specimen. Remember, the contents of this field will be part of what is used to establish the identity of the patient. If you have a Peter Wachowski from Southwest Clinic in the system and you enter another Peter Wachowski...but from Daily Health Clinic, the entry will be treated as a new patient. When you push the **Search** button, SchuyLab searches its memory for an exact match to that patient. If SchuyLab finds a matching patient, it will fill in the nameplate at the top of the screen. (There is more information visible in the nameplate than you have put in the middle section of the batch entry screen.) Use this information to confirm the identity of the patient. If you need more information, use the Patient Demographics icon in the bottom section to look further. What do you do if you decide that the patient SchuyLab finds isn't the one on the requisition? Push the **Cancel** button on the bottom section. This will clear the screen of what you have typed in, without advancing the specimen number. Now you can type in a new set of patient information and **Search** again. If you aren't certain that the patient that SchuyLab 'finds' is the same as the one on the requisition form in front of you, make a new patient. Get it?
If you are sure, use the patient the system finds.
If you aren't sure, make a new patient.

Enter as many fields as you are certain of, depending on the procedures set down by your lab. When you have entered all of the appropriate fields, push the button labeled **Search.** SchuyLab will look through all of the patients in its database for a

match. At this point, the middle section will 'grey out'. This keeps you from accidentally changing significant patient data after the ID has been established.

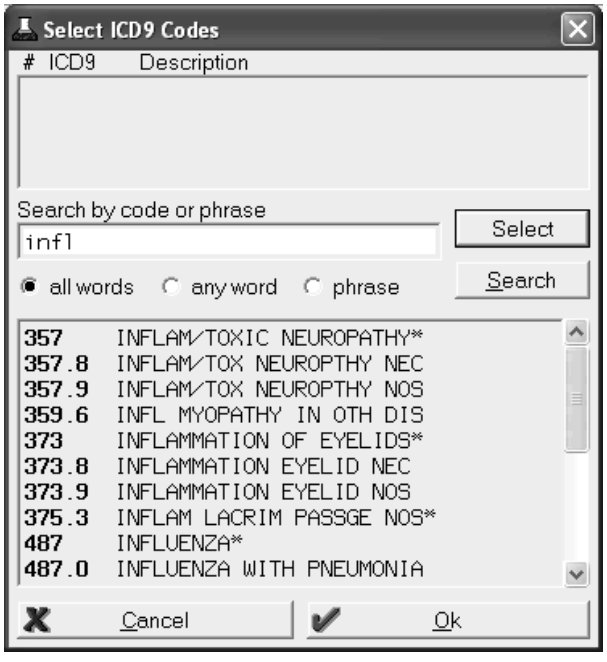
The Bottom Section



The bottom section contains two icons, nine text fields and two buttons. All of these icons and buttons are grayed out until a patient ID is established. When the middle section becomes grey, the bottom section is activated.

The icons are: **Order Tests** and **Patient Demographics.** These icons behave just like the do on the Patient Processing screen.

The Text fields are Ordering Doctor, and areas for up to eight ICD-9 codes. Today, where most labs are billing to Medicare and such, it is important to add the Diagnosis codes that the doctor should be supplying to you on the requisition form. Occasionally, a doctor will write down a diagnosis instead of the ICD-9 code (i.e. Influenza instead of 487). The List button will open the "Select ICD-9 Codes" box. By typing in the name of the diagnosis (or part of the name) in the "Search by codes or phrase" box , SchuyLab will list all the diagnosis's in it's library for you to choose from.



The buttons are:
Cancel- This button clears the screen of all the information on it.
OK- This button accepts the patient and tests, advances the specimen number, and displays an empty screen for you to enter the next specimen.

Match to Patient ID

In the Patient Name field, you can enter the patient's name or (if known) the patient's ID number. When you select SEARCH, SchuyLab will look up the patient ID and fill in the fields with the unique patient data.

Appendix: Cytology

Cytology Module

The Cytology Module offers a demographics style report with interpretative ranges based off of the Bethesda System for reporting cervical cytology. It offers a report that will monitor and provide statistics for those aspects of Pap Smear testing which need to be monitored for legal and technical purposes.

Unlike most of the reports and utilities in SchuyLab, the Cytology module must be set up and used *exactly* as described in order for it to work. There is a slight amount of variation possible, but the manner in which it is used must be expressly as described below.

While it is theoretically possible to set up the SchuyLab Cytology module for use with systems other than the Bethesda system, the effective use of another system with SchuyLab Cytology involves aspects that are inherent in the Bethesda system (such as the fact that the numeric codes in the Bethesda system are sequenced in order of severity), and hence do not need to be addressed in this document. This document deals *only* with the setup of the Bethesda system, or a system substantially identical to it. If your lab does not wish to use the Bethesda System, Schuyler House personnel will recommend setting up Cytology according to this specification before attempting technical support of this module.

Setup

The first step in setting up your Cytology Report is to establish a set of cytology tests corresponding to the categories of the Bethesda system: “Specimen Adequacy” and “Interpretation" (sometimes called "Result" or "Diagnosis”) are required. “Review and Ancillary Testing” “General Categorization”, and “Educational Notes and Suggestions” are optional headings that are recommended in the Bethesda system. The tests "Cytologist's Initials" and "Pathologist Review" can also be valuable in monitoring and documenting the work done.

The tests "Specimen Adequacy", "General Categorization" and "Interpretation" should have the following results as Values in the setup of the corresponding test:
(NB: The following lists are not to be interpreted as instruction in the reading of cytology samples. They are intended only as information to be used in the setup of the SchuyLab Cytology module.)

Specimen adequacy

- Satisfactory for evaluation

- Unsatisfactory for evaluation (specify reason)
- Specimen rejected or not processed (specify reason)
- Specimen processed and examined, but unsatisfactory for evaluation of epithelial abnormalities (specify reason)

General categorization (optional)

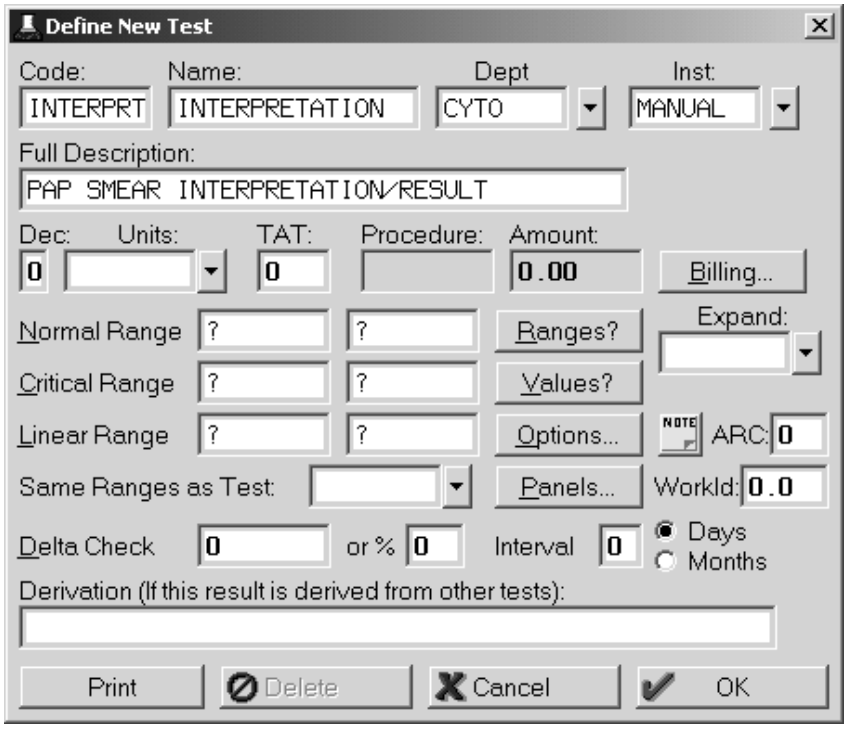
- Negative for intraepithelial lesion or malignancy
- Epithelial cell abnormality
- Other

Interpretation/result

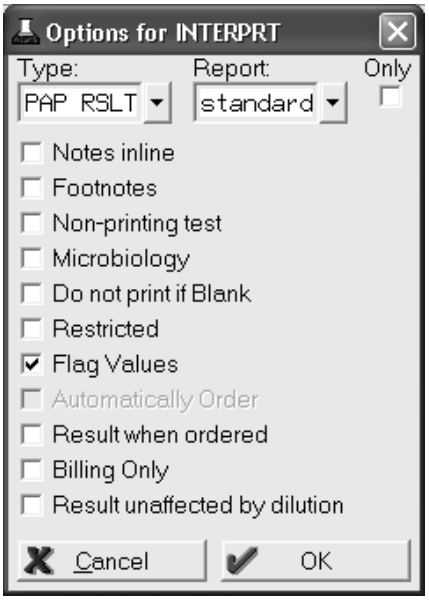
- Negative for intraepithelial lesion or cancer (malignancy).
- Epithelial cell abnormalities.
    1. Squamous cell
        - Atypical squamous cells **(ASC)**
        - ASC of undetermined significance **(ASC-US)**.
        - ASC that cannot exclude high-grade squamous intraepithelial lesion **[HSIL] (ASC-H)**.
        - Low-grade squamous intraepithelial lesions **(LSIL)**
        - High-grade squamous intraepithelial lesions **(HSIL)**
    2. Glandular cell abnormalities
        - Atypical glandular cells **(ACG)**
        - Endocervical adenocarcinoma in situ **(AIS)**
        - Adenocarcinoma:

Next, make a new panel called Pap Smear (PAPSMEAR) that contains these above tests. **To set up the test INTERPRETATION in SchuyLab:**

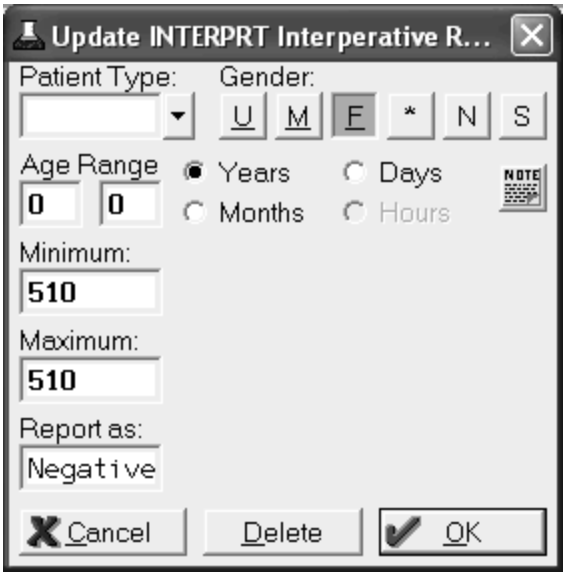
1. Select **F8. Tools.** SchuyLab displays the System Tools menu.
2. Select **Set-Up.** SchuyLab displays the Setup menu.
3. Select **Test & Panel Definition.** SchuyLab displays the Define Tests menu.
4. Select **Test Definition.** SchuyLab displays the Update Tests box, listing the existing tests.
5. If INTERPRETATION is not a listed test, then you will need to create it (see Sec. 4, Tests and Panels).



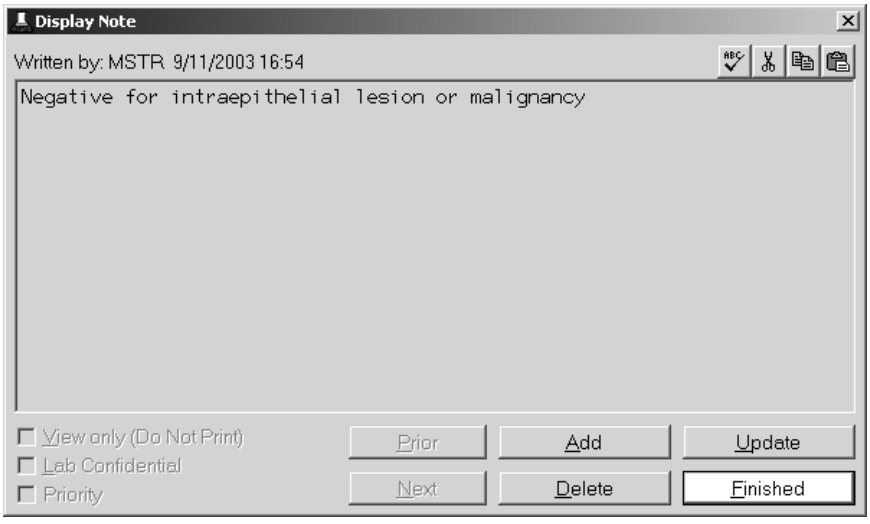
Under **Options…** button, pull down the **Type:** list and select the new test type, **PAP RSLT**. Select **OK**. This is the *crucial* step, as it allows SchuyLab's Cytology Report to differentiate this test from all of the other tests in your database. *Only* set the PAP RSLT option on the Interpretation /Result /Diagnosis category. Let me say that again: There should be Only One Test in your entire database that has the PAP RSLT type in **Options**, and that is the Interpretation test (or whatever you are naming the diagnostic result of the Pap smear). (This directive can be modified under some exceptional circumstances. *Don't* do this without asking Tech Support personnel about it.)



Under Ranges…, select the Interpretive and input your Bethesda system nomenclature results. Each result should be put as both the Minimum: and Maximum:. Use a condensed text equivalent in the Report as: field. Put your expanded text "Negative for intraepithelial lesion or malignancy" as a Note attached to that Interpretive Range. Thus when you enter in the result 510 on the PAP_RSLT test, the report will print the result as Negative, with an additional note immediately below that states "Negative for intraepithelial lesion or malignancy".



What your note pad looks like.

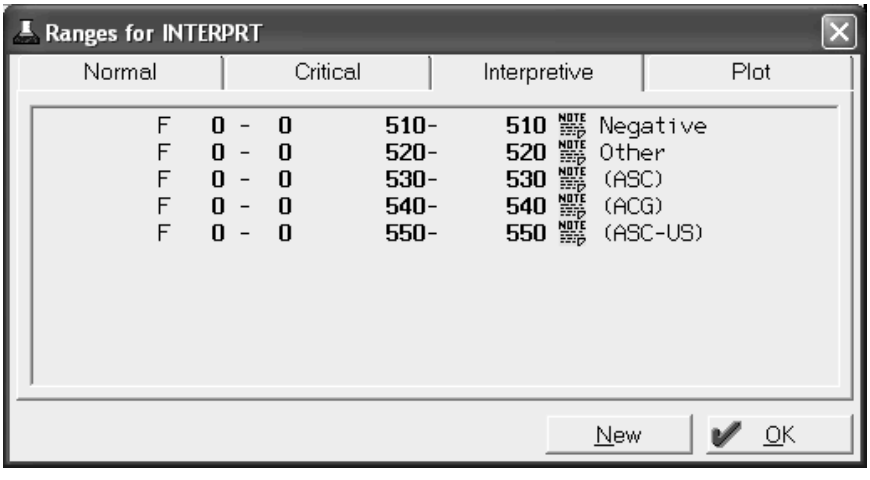


These codes have not been established by the Bethesda system, but must obey the following rules: They must be sequential. They must be in order of increasing severity. The example given below follows these rules. If you set up the Interpretive Ranges as shown below, the Cytology module will function properly.

"Minimum" "Maximum"	"Report as"	Note:
510	Negative	**Negative for intraepithelial lesion or cancer (malignancy)**
520	Other	**Endometrial cells present in a woman age 40 or over**
530	(ASC)	**Atypical squamous cells**
540	(ACG)	**Atypical glandular cells**
550	(ASC-US)	**ASC of undetermined significance.**
560	(ASC-H)	**ASC that cannot exclude high-grade squamous intraepithelial lesion [**HSIL**].**
570	(LSIL)	**Low-grade squamous intraepithelial lesions**
580	(HSIL)	**High-grade squamous intraepithelial lesions**

590	(AIS)	**Endocervical adenocarcinoma in situ**
592	Adenocarcinoma	**Adenocarcinoma**
594	Other malignancy	**Other malignancies**

The Setup for this test will end up looking something like this.

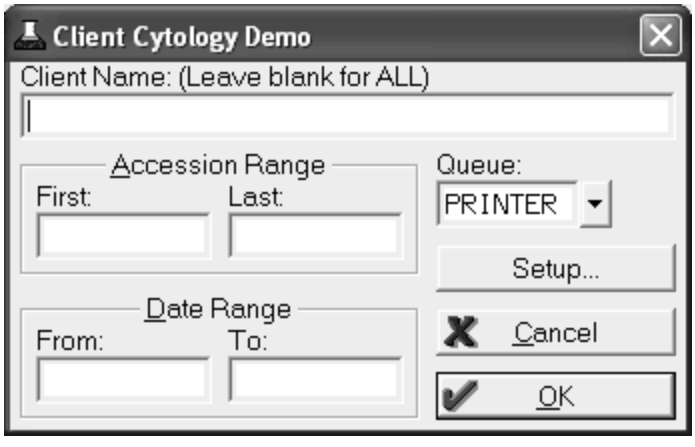


You can add as many interpretive ranges as you need.

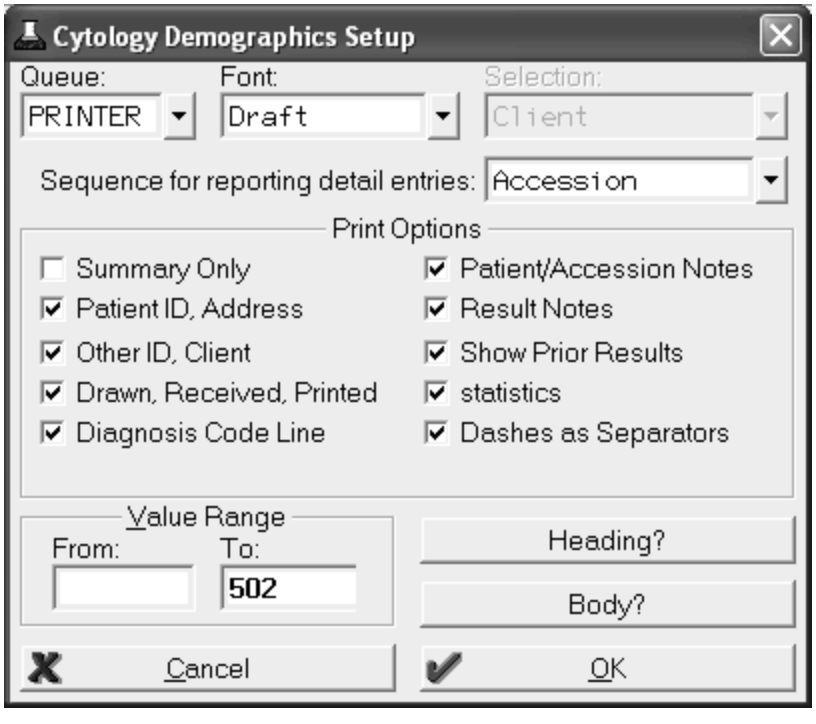
The Cytology Report

Once the Cytology tests have been properly configured, the report itself is generated in **F7: Features**. This report will print out a list of all the specimens for a given Client, along with their Result Interpretation and several additional options.

1. Select **F7: Features**
2. Select **Cytology**. This icon will be present if the module has been loaded.
3. Select **Client Report**. SchuyLab displays a pop-up box that is reminiscent of the Demographics reports.



To individualize this report for your lab, select the Setup button.



As with the other Demographics reports, you can select among the check-boxed options to determine what type of information you want on your report. Even more detailed formatting can be done by selecting the **Heading…** or **Body?** buttons and configuring your reports line-by-line, field-by-field (See Reports Setup in your SchuyLab User's Manual, Section 7 for more information on this topic.)

Many of the check options are present from the standard Demographics-style reports, however the Cytology report has some additional choices.

Sequence for reporting detail entries: is a new list that is now found on all of the Demographics reports. It allows you to now sort the list of specimens by Accession ID, Patient ID, or Patient Name order. Prior to this, all such reports have generated in the Accession order.

Patient/Accession Notes when checked will include a section for any notes that have been attached to the patient and/or specimen.

Result Notes will print any additional notes that are attached to the INTERPRETATION results. Some Labs will store that the result is simply AGC or Atypical Glandular Cells. The Bethesda system requires on AGC results to "specify endocervical, endometrial, or not otherwise specified". These designations can be attached as a note to the AGC result. This option allows the extra specifications to print along with the result.

```
---------------------------------------------------------------------------------------------
00000013  Test, Patient                              DOB:12/03/88 14 F  Dr.
          Drawn: 10/20/98  17:56 Rcv'd: 10/20/98  17:56 Printed: 02/22/99  13:53

INTERPRETATION: AGC - Atypical Glandular Cells (AGC)

        Endometrial cells.
---------------------------------------------------------------------------------------------
```

Prior Results will print any prior Pap Smear Interpretation results that the patient has had. It will display on the report as below:

```
---------------------------------------------------------------------------------------------
00000008  Test, Patient                              DOB:12/03/88 14 F  Dr.Doctor, Example
          Drawn: 11/11/98  17:27 Rcv'd: 11/11/98  17:27 Printed: 06/25/03  13:27

        This is an Accession note.

INTERPRETATION: Negative - Negative for Intraepithelial Lesion or Malignancy

Prior Results:

10/23/1998 INTERPRETATION: HSIL - High-Grade Squamous Intraepithelial Lesion (HSIL)
                                  encompassing: moderate and severe dysplasia, carcinoma in
                                  situ; CIN 2 and CIN 3
10/20/1998 INTERPRETATION: AGC - Atypical Glandular Cells (AGC)
11/28/1995 INTERPRETATION: LSIL - Low-Grade Squamous Intraepithelial Lesion (LSIL) encompassing:
                                  Human Papillomavirus/ Mild Dysplasia/ Cervical Intraepithelial
                                  Lesion (CIN) 1
12/26/1994 INTERPRETATION: AGC-FN - Atypical Glandular Cells (AGC) - favor Neoplasm
---------------------------------------------------------------------------------------------
```

The **statistics** option is one of the primary reasons the Cytology module was developed. This option tallies up the frequency of each result, and lists the count and percentage for each Client. It will give you a total count for all your Clients at the end of the report.

```
---------------------------------------------------------------------------------------------------

   4 ( 50%) Negative
   1 ( 12%) LSIL
   2 ( 25%) HSIL
   1 ( 13%) AGC

Total Accessions: 8
---------------------------------------------------------------------------------------------------
```

The last aspect of this window is the **Value Range** section. When you look at your Cytology results, you want to view them in groups that relate to the type of interpretation. To continue to follow the example given above, the Value Range of 520-550 would give you a report of all of the Epithelial Cell Abnormality results. Modify the contents of these boxes to produce the reports you need.

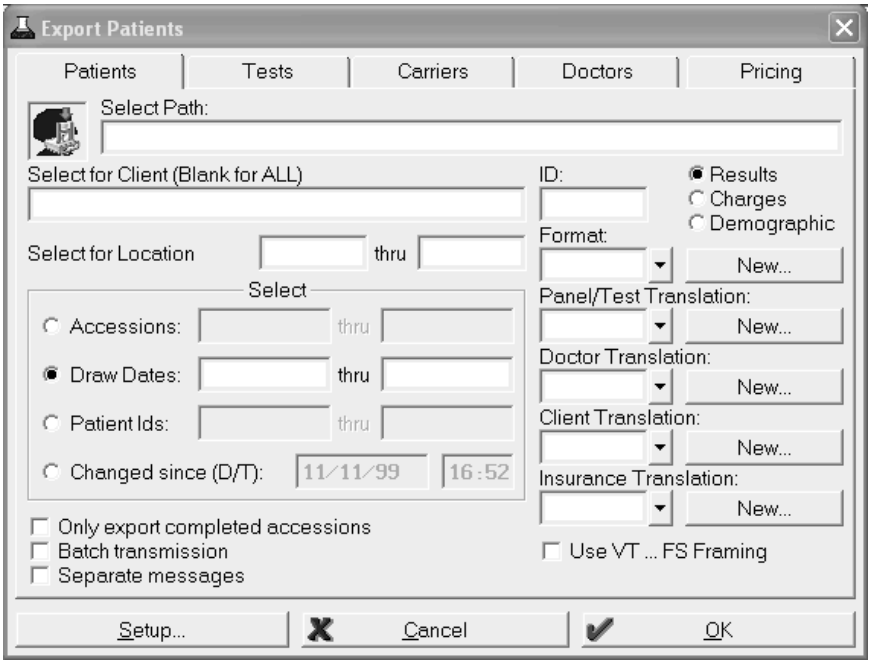
Appendix: Export

SchuyLab's patient database is kept in a proprietary format, which generally can't be interpreted by other LIS or MIS systems. The SchuyLab Export function was devised to translate patient records (demographics and test results) into other formats, and write those records to a file. The file can be on a diskette, on your computer's hard drive, or (if your station is networked) on the network server's drive. If you save to a diskette, the diskette can then be taken to another computer, and the results read in.

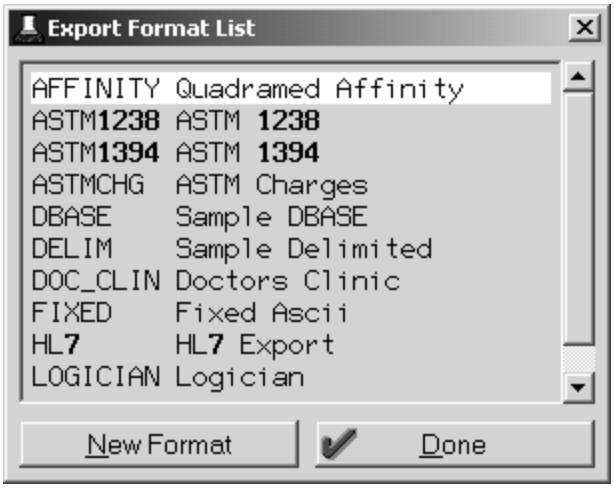
There's a bit of setup involved in using the Export function, which need only be done once. Thereafter, you can translate and write patient records to diskette effortlessly and quickly.

To Set up the SchuyLab Export Function

Select **F7. Features.**
Select **Export.** SchuyLab displays the Export Patients box.

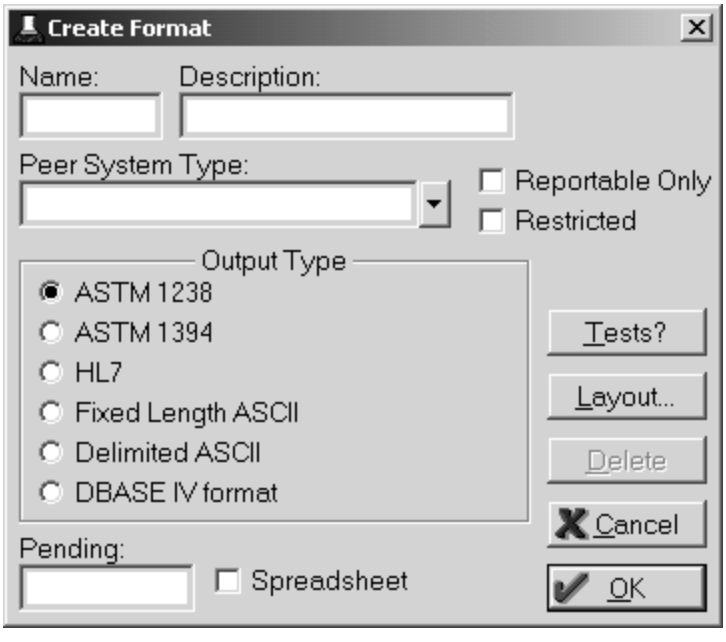


Select **Setup.** SchuyLab displays the Export Format List box.



The Export Format List box shows the formats that have been defined on your system's Export feature. To edit or delete any of these formats, you would select it from the list. For the moment, however, we'll concentrate on creating a new format to suit your lab's needs.

To create a new format for your Export feature, select **New Format.** SchuyLab displays the Create Export Format box.



Complete the fields as described below:

Name Enter a name (up to eight characters long) for the new Export format.

Description Enter a more complete description for your own records.

Peer System Type This is used when one of the pre-programmed standard formats (HL7 or ASTM) requires special handling to interface to another system. The peer system can be selected to trigger this. If the system being sent to is one of the peer systems, then it should be selected.

Output Type Select one of the output types:
ASTM-1238 / 1394, a standardized format;
HL7,
Fixed length ASCII, where all fields are the same size;
Delimited ASCII, where the fields can be of variable size and are separated by so-called "delimiters";
dBase IV format, for use with dBase spreadsheets.

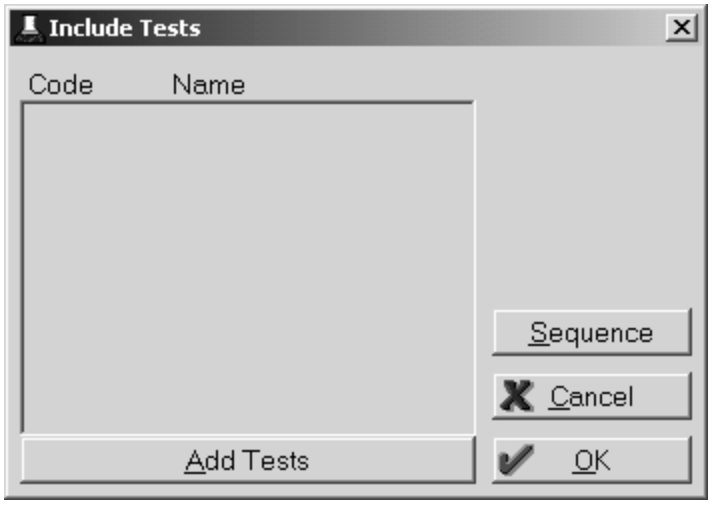
Spreadsheet Select this box if you want the fields to be arranged in the form of a spreadsheet, with the same fields repeated on every line. This is only available for Fixed length ASCII, Delimited ASCII or dBase outputs, where the tests to be exported are specified (see below).

Pending The Pending field works for all result export methods. The text entered in the box is what will be sent in the result field if the result is pending. If SUPPRESS is specified, then no pending results will be sent at all.

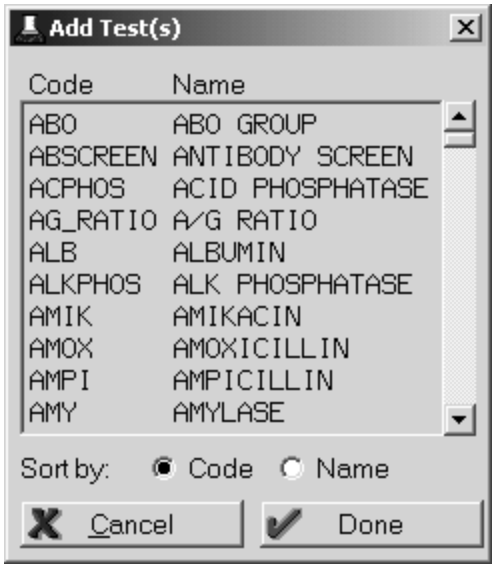
Reportable Only When this box is checked, only reportable (or printable) tests will be exported. Any test created as a "bill only test" will not be reported (See Sec. 4 – Tests and Panels for more about non printing tests).

Restricted When this box is checked, restricted test (such as HIV) will be allowed to be exported.

By default, the Export function exports all tests in the SchuyLab system (results, codes, prices, etc, as determined by the setup of the format). If you wish Export to only look at specific tests, select the **Tests?** button. SchuyLab displays the Include Tests box.



The Include Tests box will list all tests currently designated for this Export format. (If none are listed, then all the tests are available.) To add to the list, select the **Add Tests** button. SchuyLab displays the Add Test(s) box.



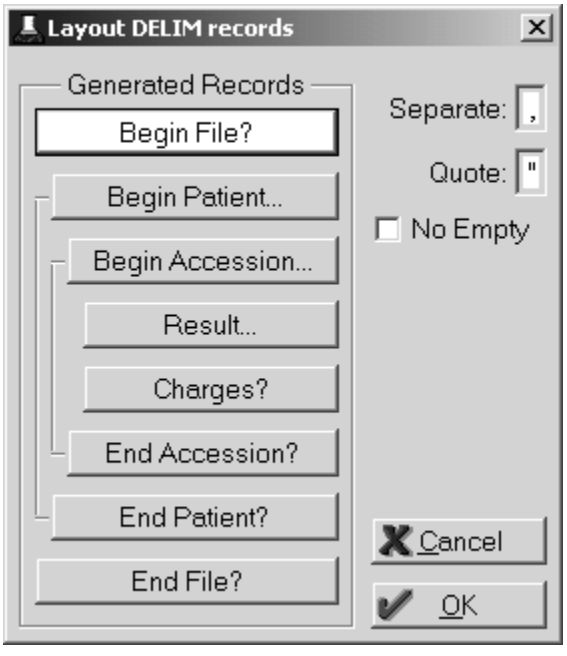
Select the tests you want included in the Export format, then select **Done.** SchuyLab returns to the Include Tests box.

When you're finished designating tests for the Export format, select **OK.** SchuyLab returns to the Create Export Format box.

SchuyLab has four output types to offer you, ASCII, ASTM, HL7, DBASE. Following is the setup for each of these formats. The most common format used is the Fixed or Delimited ASCII format.

ASCII – Fixed Length and Delimited

The ASCII Export format is defined by the number, order, and content of the fields it generates in each record of the report. To set these, select the **Layout** button. SchuyLab displays the Layout Records box. The box show below is set for the Delimited ASCII Format. Fixed ASCII does not contain the Separate or Quote boxes.



If you are using the Delimited ASCII type, complete the fields as described below:

Separate Enter the character to be used to separate fields. The comma (,) is the default, as it's the most common, but the vertical stroke (|) is used by some software programs.

Quote Enter the character to be used to mark the beginning and end of a field. The double quote (") is the default, as it's the most common, but the single quote (') is used by some software programs.

No Empty Checking the No Empty box will force the program to put a "" field rather than leaving it blank. This should only be used if the

receiving system requires it.

The definition of the generated records is the heart of the Export function. Think of each record as a line in a spreadsheet. A typical record might look something like this:

"Smith", "John", "550-12-2222", "1-1-58", "WBC", "3.8", "L"

Each of the items in quotes is a *field.* Defining a record is simply telling SchuyLab which field -- that is, what information -- do you want on the line, in what order? How do you want it sorted?

SchuyLab will search through all the test results being Exported, one at a time, and sort them by type of record, as described below:

Beginning This type of record is generated once per Export, and is the first record in the file.

Ending This type of record is generated once per Export, and is the last record in the file.

Patient This type of record sorts the file by patient ID. It's useful for applications requiring patient information to be on a separate line.

Accession This type of record sorts the file by accession ID. It's useful for applications requiring specimen information to be on a separate line.

Result This type of record sorts the file by test. It's useful for applications where each patient or accession is listed once, followed by test information. (It's the most commonly used record type.)

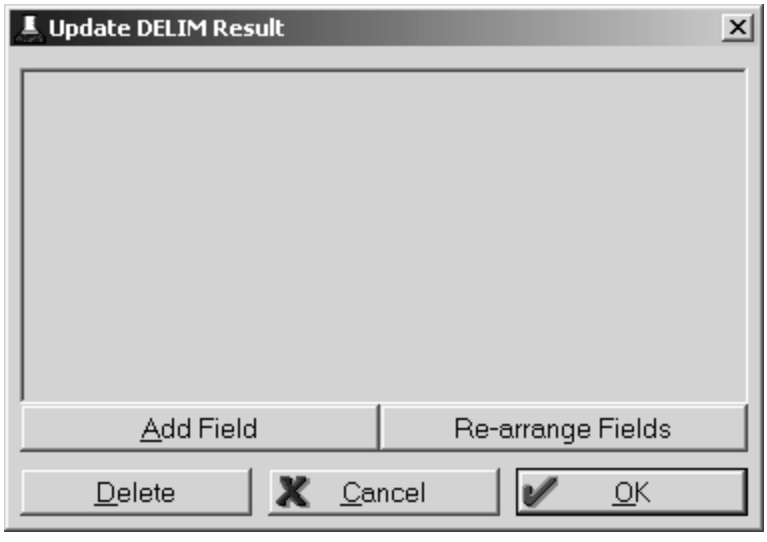
Charges This type of record sorts the file by charges. It's useful for billing applications and financial reports.

Note that we can have several types of records in a single export format. For instance, we can start with a Beginning record, which might simply be a line of text with the name of the lab. That might be followed with a Patient record, then a Result record.

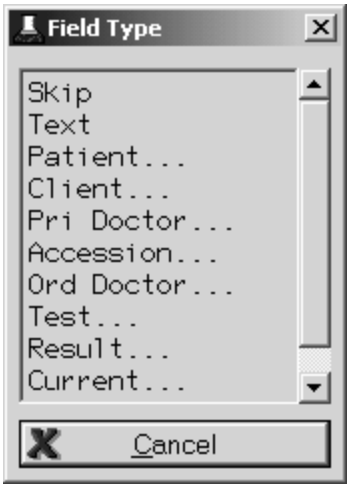
Also note that the Patient and Accession records will be separate from any other records. That being the case, they will also repeat as often as necessary. (Remember, SchuyLab Export will search through its database in order, grabbing first the patient information, then the specimen information, then the tests.) The software application

that's intended to read the Export file must be able to parse the file correctly; if it's not capable of distinguishing separate lines of information, you may want to only use the Result record type. It can be configured to include patient and accession information.

Let's take a typical example, and have the Export function generate a Result-type record. (The procedures described here are applicable to any of the record types.) Select the **Result?** button from the Layout Records box. SchuyLab displays the Define Result box.



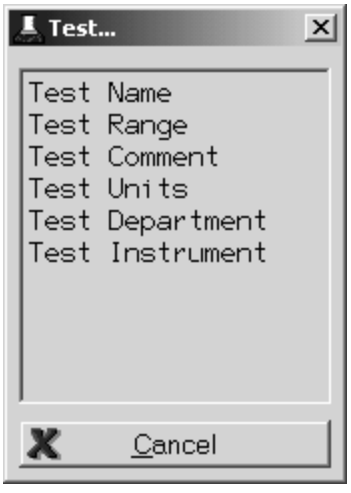
Remember that each record is made up of fields: in our example above, the line of data had each field in quotes. We must define the fields that we want included in this record. To do this, select **Add Field.** SchuyLab displays the Field Type box.



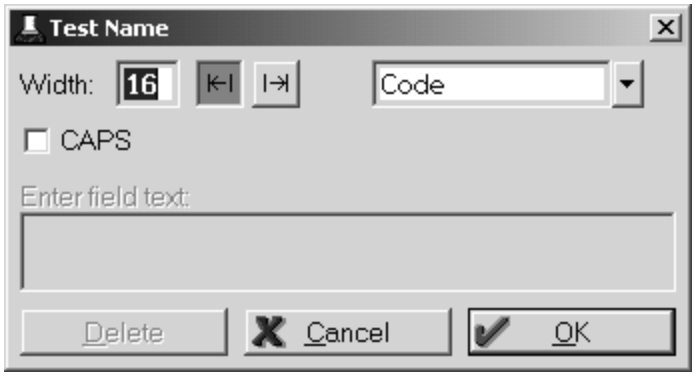
Different types of records will be able to access different fields (i.e., different information), but the fields for the Result record are typical:

Skip	Inserts a blank field.
Text	Inserts a line of text. Length of the line, and its contents, are defined by the user.
Patient...	Inserts information from the patient file: patient name, patient ID, date of birth, etc.
Accession...	Inserts information from the specimen record: type of specimen, draw date & time, received date & time, etc.
Test...	Inserts information about the tests ordered on the specimen: test code, full test name, normal range, etc.
Result...	Inserts information about the results of the tests ordered on the specimen.
Doctor...	Inserts information about the patient's doctor: name, ID, etc.
Client...	Inserts information about the patient's client, which may be the doctor, his clinic, or other: name, ID, etc
Current...	Inserts information about the record you are exporting: date, time, etc.

Let's say, for the sake of our example, that we're exporting test results for data analysis in a spreadsheet. So one of our fields should be the name of the tests. We select the line "Test..." from the Field Type box. SchuyLab displays the Test... box, listing the fields that are associated with test definition.



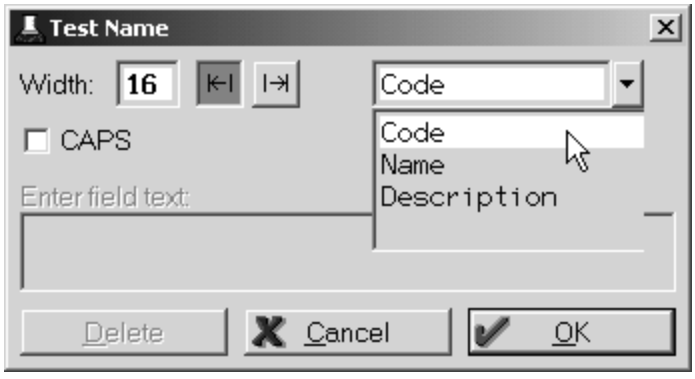
We select the "Test Name" line from the Test... box. SchuyLab displays the Test Name box, which defines the parameters of this field.



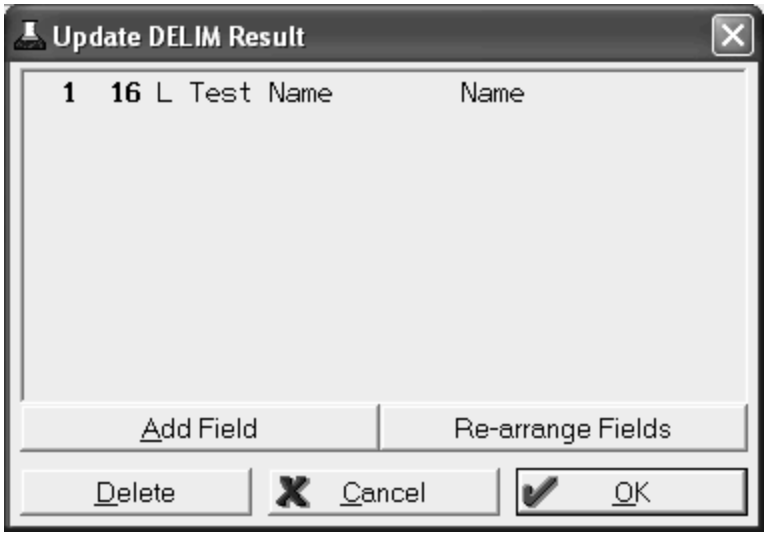
The Width window determines how many characters long this field will be. (For Test Name, the Width is set to 16 by default: this is the length permitted when the test was defined.) The next two buttons determine whether the data in this field will be left-justified or right-justified: that is, whether the sixteen characters would read "WBC_____" or "_____WBC".

If you wish the text to be entirely in capital letters, select the CAPS check box.

Finally, there may be further choices in the definition of field. For instance, when defining a test name, SchuyLab requires a test code (8 characters) as well as a test name (16 characters -- the part that's printed on the patient's report). It also permits a "full description", which is intended for internal use. For the Test Name field, we have our choice of these three items. If we select the pull-down list at the upper right of the Test Name box, we get a list of these choices:

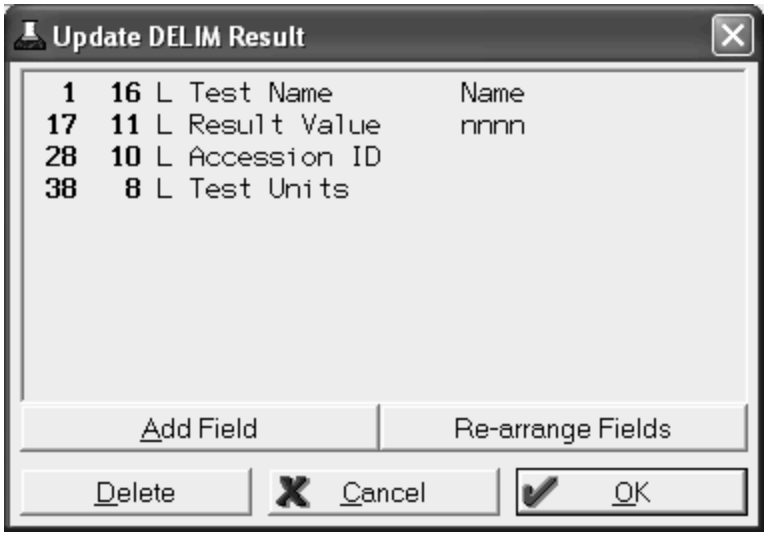


We select the form we want, then select **OK.** SchuyLab returns to the Define Result box, listing the field we've just inserted.

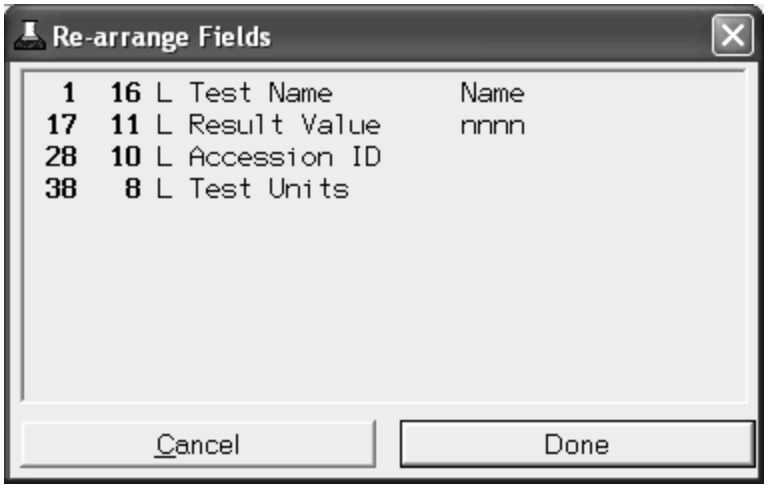


On the line displaying the field, the first number is the space in the line where the field begins (in this case, since it's the first field, it starts in space #1). The next number is the length of the field (in this case, 16 spaces). The next character is L or R, showing whether the field is left-justified or right-justified; then comes the field type (Test Name) and the exact means of display (in this case, the test code).

To add further fields to the record, we select the **Add Field** button, and repeat the above steps until we have all the fields we need. When we're done, the record will look something like this:

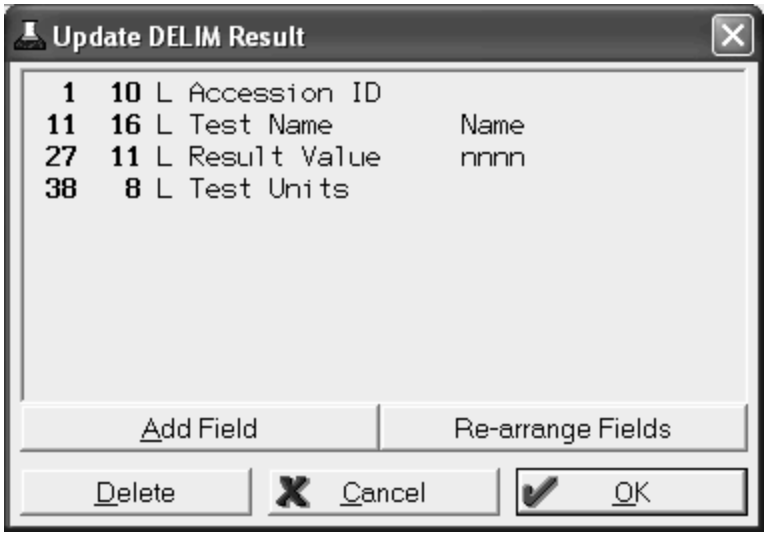


Once the fields have been added to the record, you may need to arrange them in the correct order. To do this, select the **Re-arrange Fields** button. SchuyLab displays the Re-arrange Fields box, listing all the fields currently defined in the record.



Re-sequencing the fields is done by clicking the mouse on the item you want to move, then clicking at the spot on the list where you want it to be. Say, for instance, that in the above example, we want the accession ID number to be the first field on the line. We click on the "Accession ID" line, highlighting it. Then we move the mouse to the top of the list and click again. The accession ID moves to the top of the list.

When the fields are correctly arranged, select **Done.** SchuyLab returns to the Define Result box, with the fields in their new order.

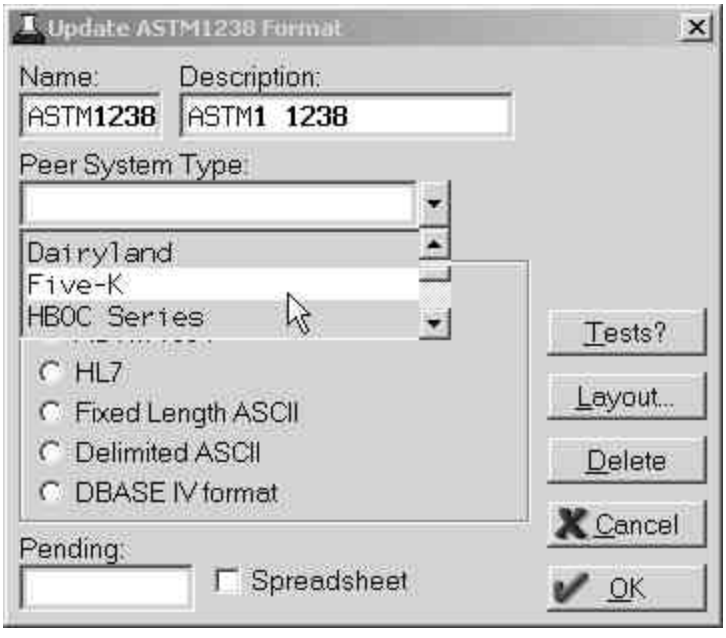


When the record is satisfactory, select **OK.** SchuyLab returns to the Layout Records box. Select **OK** again to return to the Create Export Format box. Select **OK** once again to return to the Export Format List box, with the new format present. Select **Done** to return to the Export Patient box. We are now ready to export data to a diskette. Below is an example of what you may see.

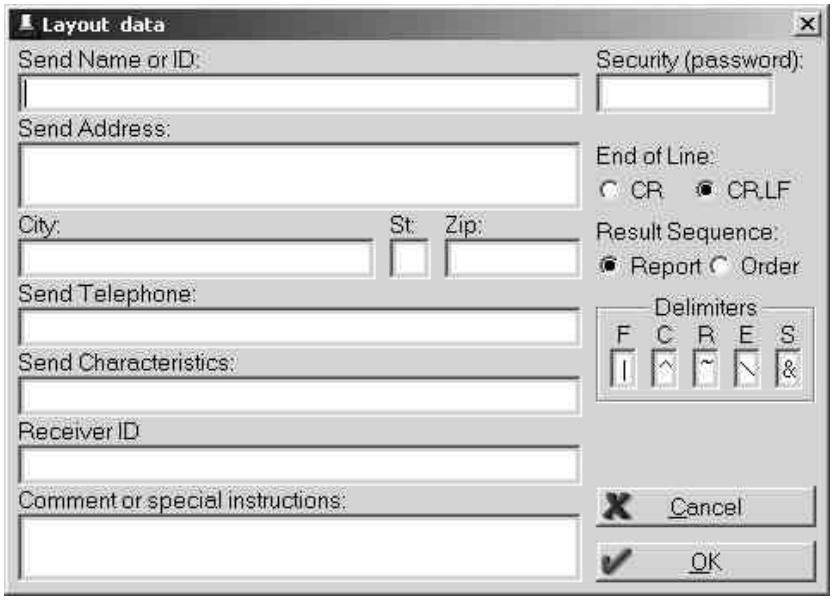
PATIENT, 00031, Test, Patient,
000144, WBC, 50, 10^3/uL, RBC, >7.0, 10^6/uL, HCT, 50, %
PATIENT, 103857, Smith, Kathleen,
000152, WBC, Pending, 10^3/uL, RBC, Pending, 10^6/uL, HCT, Pending, %
PATIENT, 383566659, Smith, Barbara,
000153, WBC, Pending, 10^3/uL, RBC, Pending, 10^6/uL, HCT, Pending, %
PATIENT, 1234, Smith, Jerry,
000156, WBC, Pending, 10^3/uL, RBC, Pending, 10^6/uL, HCT, Pending, %
PATIENT, 00031, Test, Patient,
000157, WBC, QNS, 10^3/uL, RBC, See Note, 10^6/uL, HCT, Pending, %
PATIENT, 00031, Test, Patient,
000158, WBC, See Note, 10^3/uL, RBC, See Note, 10^6/uL, HCT, Pending, %
PATIENT, 00061, Smith, Grinch,
000159, WBC, Pending, 10^3/uL, RBC, Pending, 10^6/uL, HCT, Pending, %

ASTM 1238 / 1394

ASTM 1238 and ASTM 1394 are programmed into SchuyLab, with very little setup on your part. We have a number of HIS types available. To choose one, click on the arrow to the right of the box below **Peer System Type**



To finish any setup, select the **Layout** button. SchuyLab will display the Layout Data box.

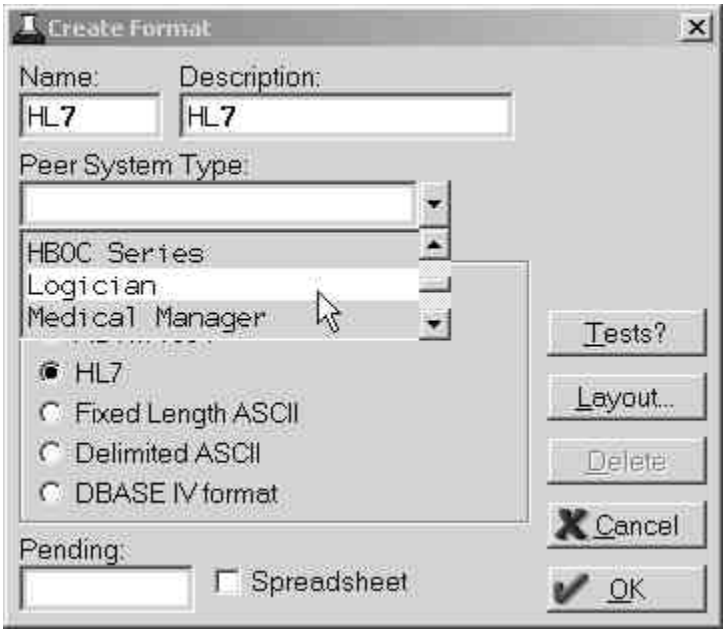


You will need to contact the software people for the Peer System you are using to complete the information needed in this box.

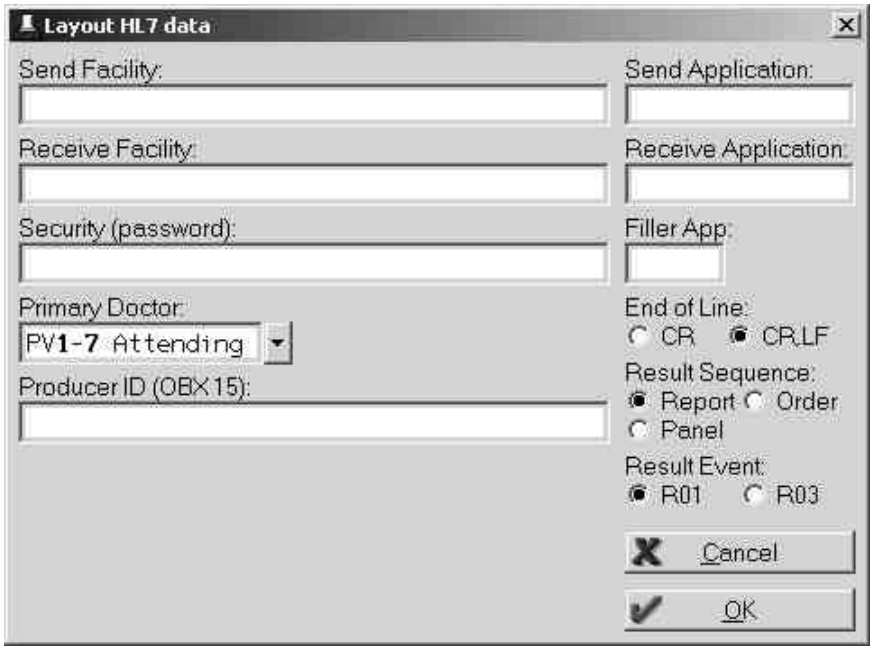
When the record is satisfactory, select **OK.** SchuyLab returns to the Create Export Format box. Select **OK** again to return to the Export Format List box, with the new format present. Select **Done** to return to the Export Patient box. We are now ready to export data to a diskette.

HL7

HL7 is a generated generic output that can be used as a default program, with or without a specified Peer System Type.



To finish any setup, select the Layout button. SchuyLab will display the Layout Data box.

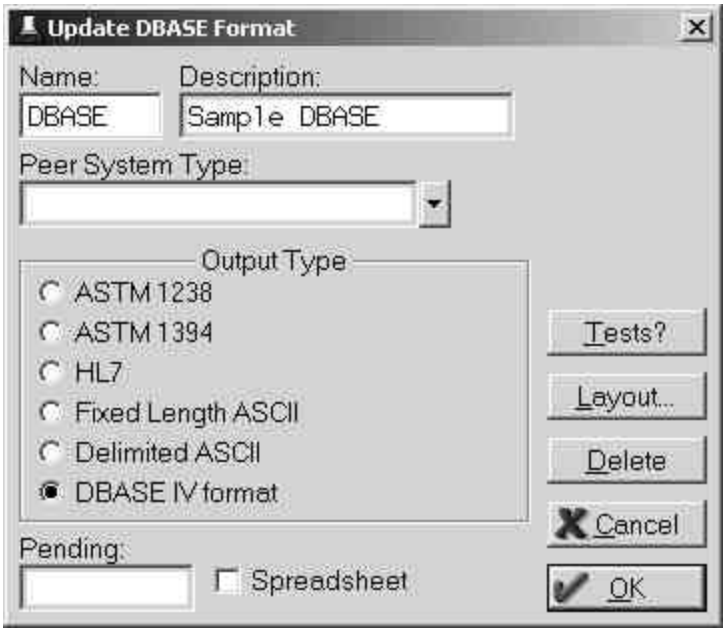


You will need to contact the software people for the Peer System you are using to complete the information needed in this box.

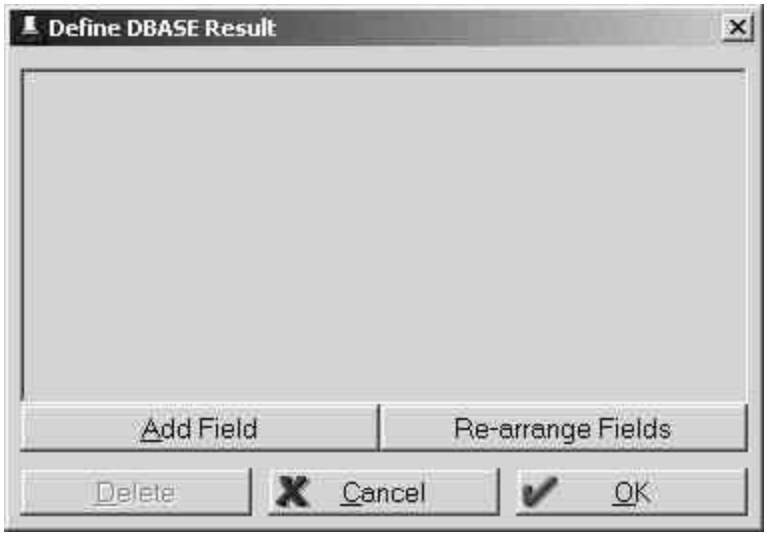
When the record is satisfactory, select **OK.** SchuyLab returns to the Create Export Format box. Select **OK** again to return to the Export Format List box, with the new format present. Select **Done** to return to the Export Patient box. We are now ready to export data to a diskette.

DBASE IV

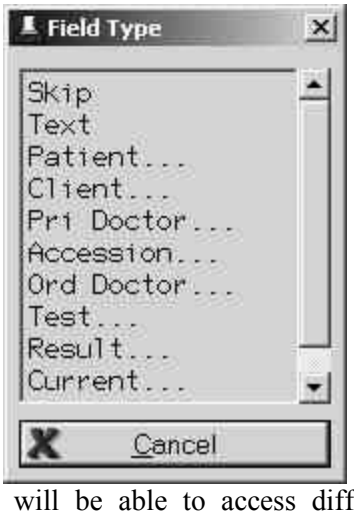
The DBASE IV Output type is specifically for use with the dBase IV database engine software from Ashton-Tate.



Let's take a typical example, and have the Export function generate a Result-type record. (The procedures described here are applicable to any of the record types.) Select the **Layout** button from the Update Format box. SchuyLab displays the Define Result box.



Remember that each record is made up of fields. We must define the fields that we want included in this record. To do this, select **Add Field.** SchuyLab displays the Field Type box.

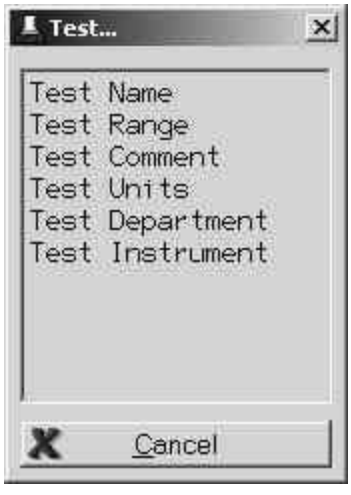


Different types of records will be able to access different fields (i.e., different information), but the fields for the Result record are typical:

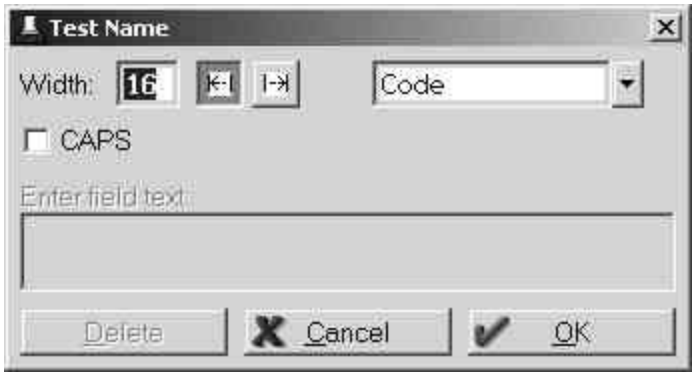
Skip	Inserts a blank field.
Text	Inserts a line of text. Length of the line, and its contents, are defined by the user.
Patient...	Inserts information from the patient file: patient name, patient ID, date of birth, etc.
Accession...	Inserts information from the specimen record: type of specimen, draw date & time, received date & time, etc.
Test...	Inserts information about the tests ordered on the specimen: test code, full test name, normal range, etc.
Result...	Inserts information about the results of the tests ordered on the specimen.
Doctor...	Inserts information about the patient's doctor: name, ID, etc.
Client...	Inserts information about the patient's client, which may be the doctor, his clinic, or other: name, ID, etc
Current...	Inserts information about the record you are exporting: date, time, etc.

Let's say, for the sake of our example, that we're exporting test results for data analysis in a spreadsheet. So one of our fields should be the name of the tests. We

select the line “Test...” from the Field Type box. SchuyLab displays the Test... box, listing the fields that are associated with test definition.



We select the “Test Name” line from the Test... box. SchuyLab displays the Test Name box, which defines the parameters of this field.

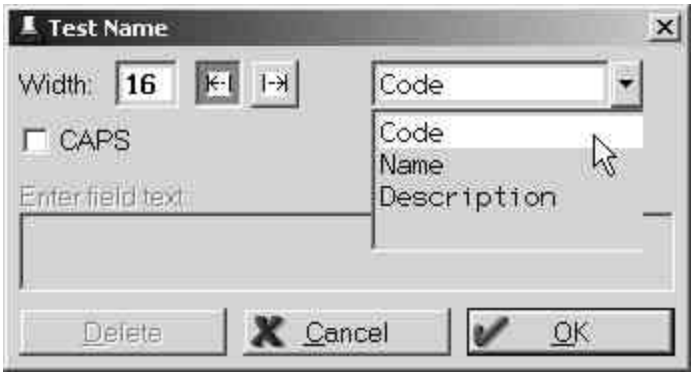


The Width window determines how many characters long this field will be. (For Test Name, the Width is set to 16 by default: this is the length permitted when the test was defined.) The next two buttons determine whether the data in this field will be left-justified or right-justified: that is, whether the sixteen characters would read “WBC_____” or “_____WBC”.

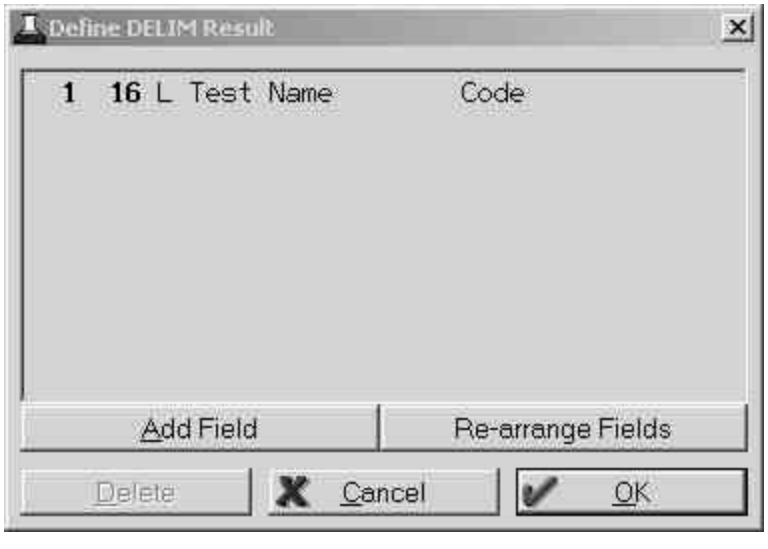
If you wish the text to be entirely in capital letters, select the CAPS check box.

Finally, there may be further choices in the definition of field. For instance, when defining a test name, SchuyLab requires a test code (8 characters) as well as a test name (16 characters -- the part that’s printed on the patient’s report). It also permits a

"full description", which is intended for internal use. For the Test Name field, we have our choice of these three items. If we select the pull-down list at the upper right of the Test Name box, we get a list of these choices:

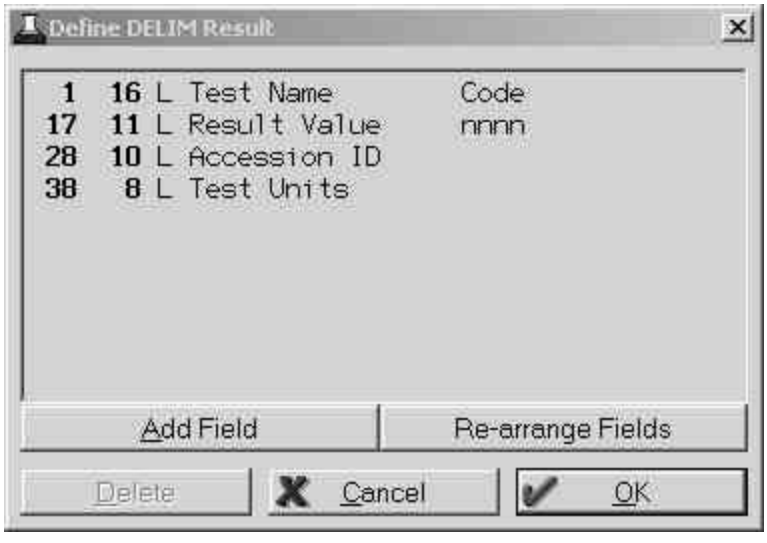


We select the form we want, then select **OK.** SchuyLab returns to the Define Result box, listing the field we've just inserted.

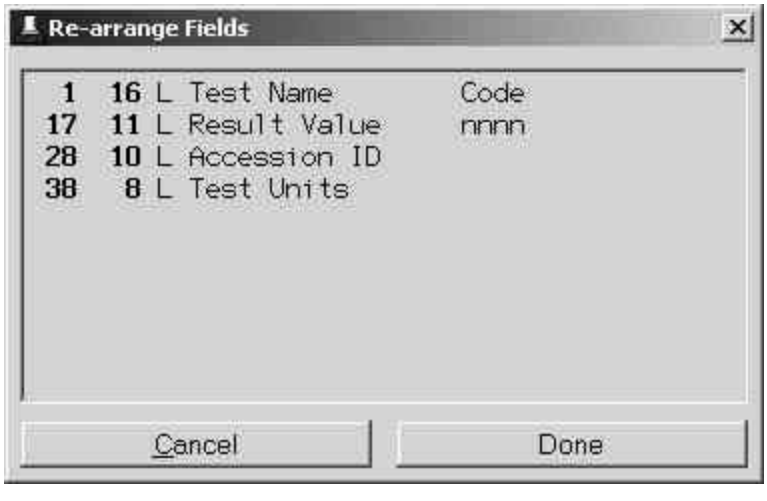


On the line displaying the field, the first number is the space in the line where the field begins (in this case, since it's the first field, it starts in space #1). The next number is the length of the field (in this case, 16 spaces). The next character is L or R, showing whether the field is left-justified or right-justified; then comes the field type (Test Name) and the exact means of display (in this case, the test code).

To add further fields to the record, we select the **Add Field** button, and repeat the above steps until we have all the fields we need. When we're done, the record will look something like this:



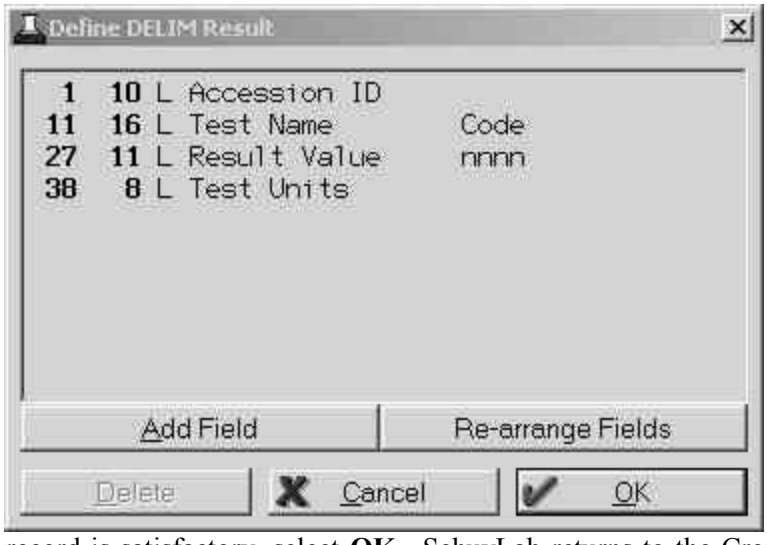
Once the fields have been added to the record, you may need to arrange them in the correct order. To do this, select the **Re-arrange Fields** button. SchuyLab displays the Re-arrange Fields box, listing all the fields currently defined in the record.



Re-sequencing the fields is done by clicking the mouse on the item you want to move, then clicking at the spot on the list where you want it to be. Say, for instance, that in the above example, we want the accession ID number to be the first field on the line. We click on the "Accession ID" line, highlighting it. Then we move the

mouse to the top of the list and click again. The accession ID moves to the top of the list.

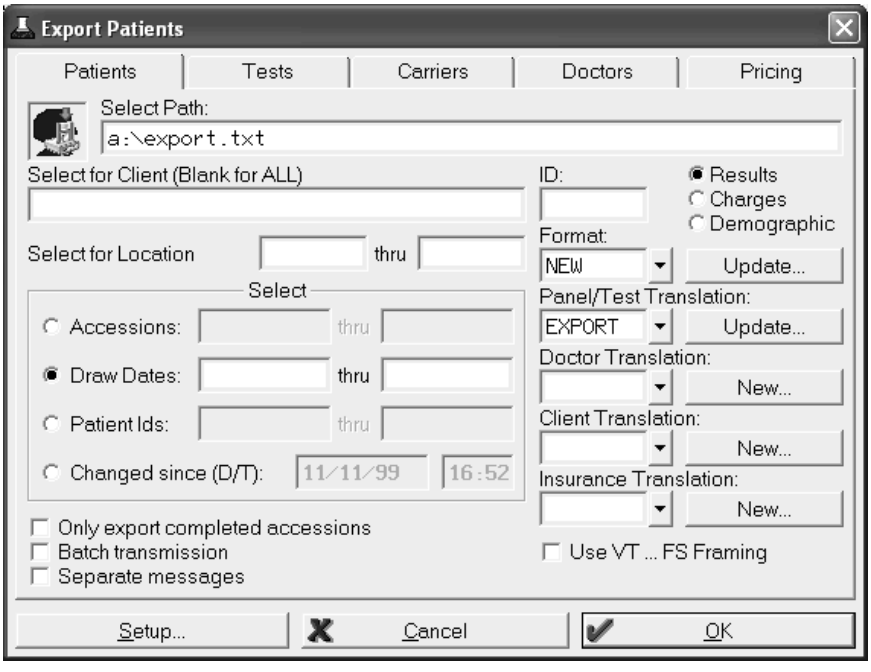
When the fields are correctly arranged, select **Done.** SchuyLab returns to the Define Result box, with the fields in their new order.



When the record is satisfactory, select **OK.** SchuyLab returns to the Create Export Format box. Select **OK** again to return to the Export Format List box, with the new format present. Select **Done** to return to the Export Patient box. We are now ready to export data to a diskette.

To Use the SchuyLab Export Function

1. Select **F7. Features.**
2. Select **Export.** SchuyLab displays the Export Patients box.



3. From the **Format** pull-down list, select the format you've defined for the exported file. (Once you've selected it, it will remain the default until you change it again.)
4. In the Select Path window, type the name of the file the Export function is to create. Be sure to include the drive designation, if it's different than the drive on which your SchuyLab system is installed. Thus, in the above example, we're writing the file on the computer's 3.5" diskette drive, so we start the path with the phrase "A:\" (the name of that drive). (Note: once you've entered a path and filename, it will remain the default until you change it again.)
5. If you wish to export records for the patients of a single Client, type that Client's name or Client ID number in the Select for Client field. Leaving this field blank will cause patients records for ***all*** Clients to be exported.
6. Select the method of sorting patient records:

Accessions Enter the beginning and ending specimen ID (accession) numbers for the range of records you wish to export.

Draw Dates Enter the beginning and ending dates for the records you wish to export.

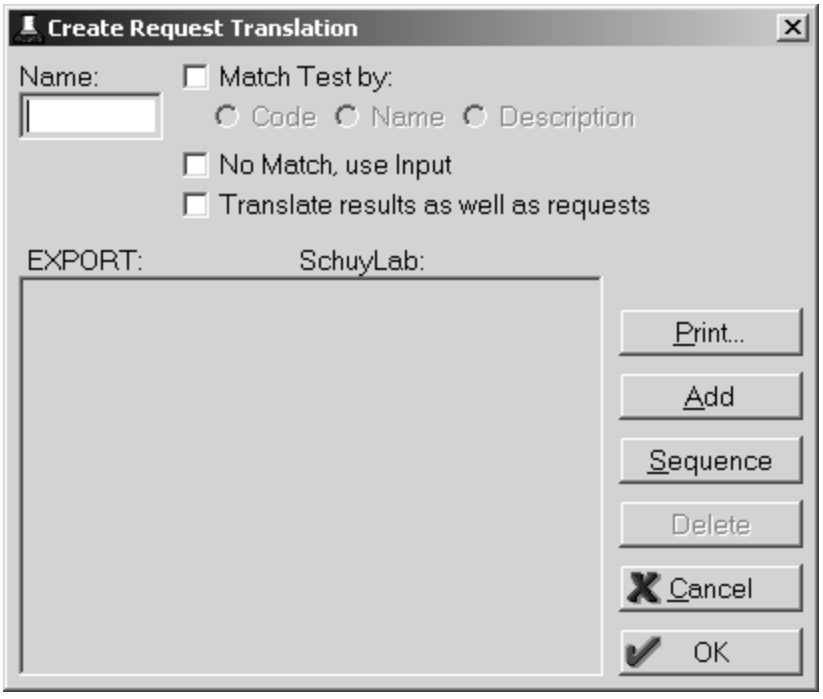
Patient IDs Enter the ID number of the patient(s) whose record(s) you wish to export.

Changed Since (D/T)	Enter the date and time and you will export any changes that have been made since that date.

7. Select **OK.** SchuyLab exports the specified patient records into the file named in the Select Path field.

Panel/Test Translation

In some case, the program you are exporting information to may use test codes that are different from what you are using in SchuyLab. By setting up this translation table, SchuyLab will translate the correct tests. Select the "Update" button.

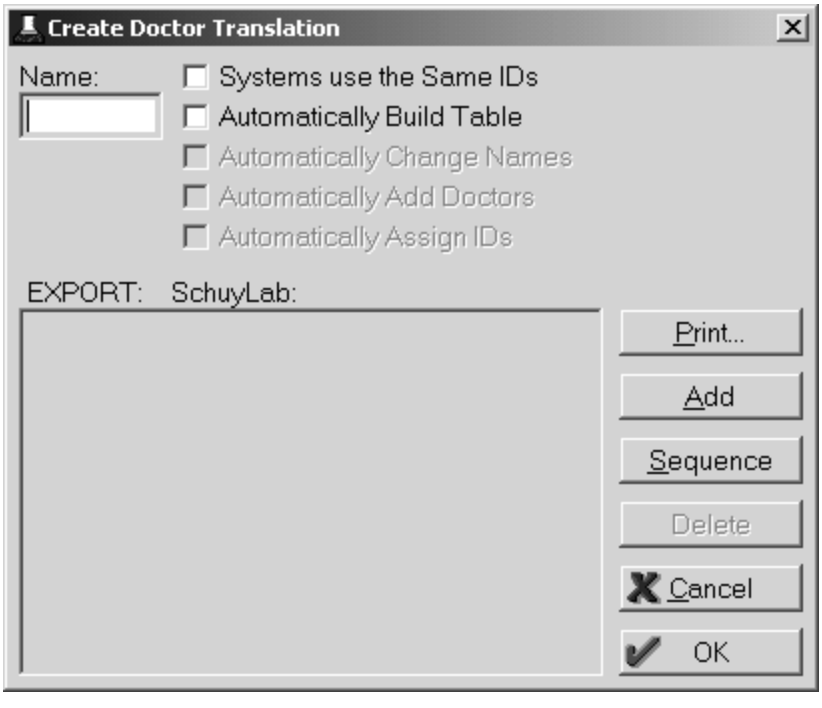


Match Test by:	**Code: Use test code** **Name: Use test name** **Description: Use test description**
No Match, Use Input	**If the exported test name doesn't match the one we expect, it brings it in without translation. Otherwise no export takes place.**
Translate results as well as request	**In some cases you will need to send back the test number instead of the code or name. This box will need to be checked for that to work properly.**

Just like the Test Translation Table in F8, Tools, Device Setup, you need to put in the test code or name as it comes across (I.e. 001, 010, etc). Under the SchuyLab side match which test this will translate to (i.e. 001 = K, 010 = NA).

Doctor Translation

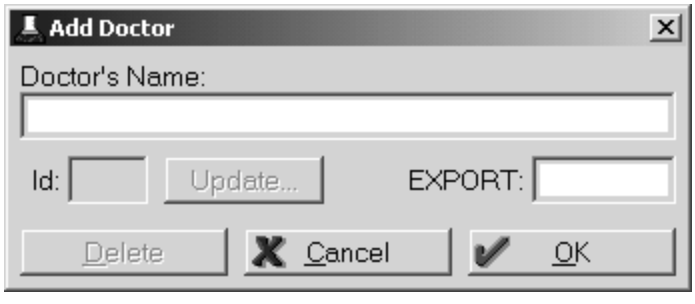
In some case, the program you are exporting information to may use codes for each doctor. By setting up this translation table, SchuyLab will translate these codes for you. When you select the "New…" button,



Systems use the Same IDs — **IDs match between both systems**

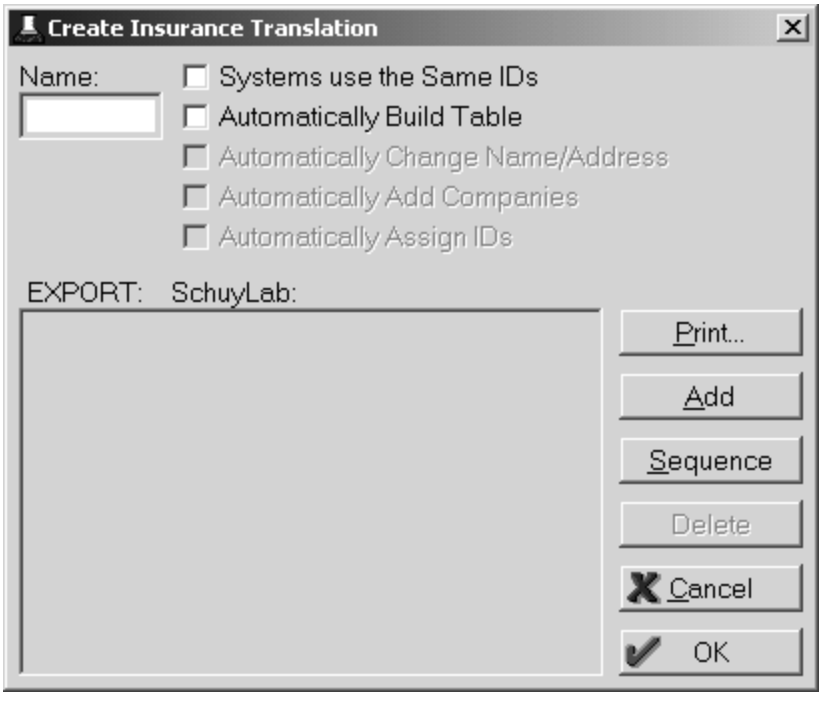
Automatically Build Table	**Automatically build a translation table**
Automatically Change Name	**If the doctor's name changes, trust that the other system has the correct name.**
Automatically Add Doctors	**If the other system sends over a new doctor, add them to the list.**
Automatically Assign IDs	**If you choose to automatically add doctors, the system will auto automatically assign ID numbers.**

If the doctor you enter is not in SchuyLab, the Add Doctor box will open.



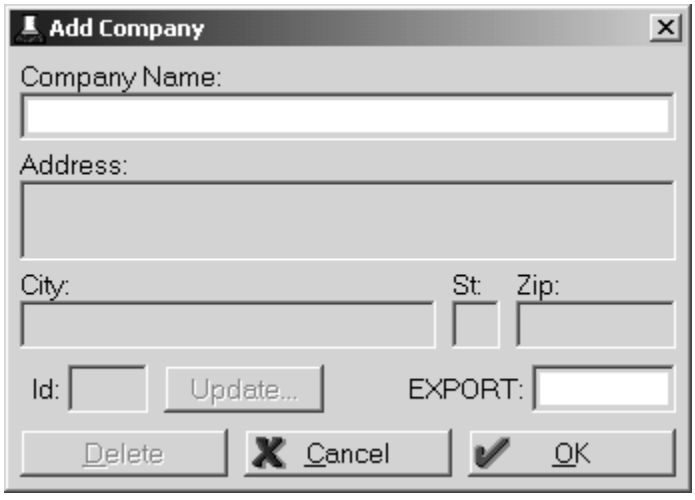
Insurance Translation

In some case, the program you are exporting information to may use codes for each insurance carrier. By setting up this translation table, SchuyLab will translate these codes for you.

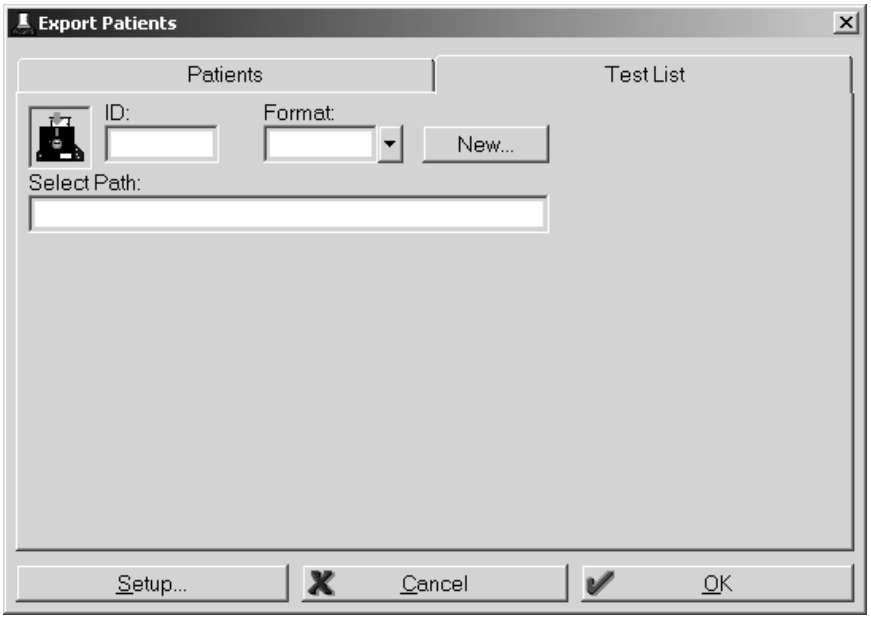


Systems use the Same IDs	**IDs match between the systems**
Automatically Build Tables	**Automatically build a translation table**
Automatically Change Name / Address	**If the company name or address changes, update the SchuyLab list.**
Automatically Add Companies	**If the other system sends over a new company, add it to the SchuyLab list**
Automatically Assign IDs	**Assign IDs to any new company.**

If the company name you enter is not in SchuyLab, the Add Company box will open.



Test List



Export of Test List. The Export feature now has a test export tab as well as a patient export. This is currently only able to export some specific formats. More will be added.

Appendix: SchuyLab Medical Necessity

Medical Necessity

Everyone makes mistakes. Mistakes are inevitable, but one can avoid having to deal with the consequences of a particularly messy one by catching it before it does damage. One particularly painful error deals with Medicare, and the payors of your lab's tests. Medicare requires every test run on a patient to correspond to the diagnosis given by the patient's doctor, to be sure that the lab is not charging unnecessary tests. Medicare (and other insurance payers) uses the ICD-9 diagnostic codes of the patient to determine if the tests you run are medically necessary. Needless to say, if someone at the lab goofs and enters a wrong ICD-9 code the lab will not get paid.

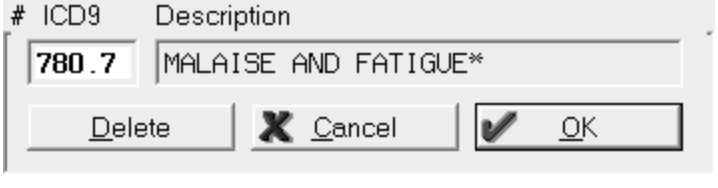
Medical Necessity is designed to help catch these mistakes, alerting you to tests and diagnoses that have nothing to do with one another, and allowing you to check and see if you have entered the ICD-9 code correctly. It is designed to advise you of potential problems before the Medicare claim returns, denied.

Medical Necessity Alerts

The Medical Necessity Alert will appear if you have just ordered a test or panel that is not validated by any of the diagnoses presented by the doctor. It gives you the chance to cancel the tests, override the decision (and accept the consequences), or check the ICD-9 code for an error. Your tests will automatically be checked if you have enabled automatic checking in Medical Necessity Setup (see Setup below for details,) and if the patient's bill type supports Medical Necessity. This screen will not appear if all of the procedures you have just ordered are confirmed by the patient's ICD-9 codes.

Medical Necessity Alert
One or more of the listed procedures are not normally performed for the specified diagnosis. Please check your ICD9 coding.
ICD9 Description
1 780.7 MALAISE AND FATIGUE*
CPT ICD9 links Description
80011 1 COMP.METABOLIC
81003 NOT ALLOWED UA DIPSTICK
ICD9...
OVerride
Cancel
OK

At the top of the list is the set of ICD-9 code(s) assigned to the accession, and their description(s). Selecting one of the codes will bring you a smaller box, allowing you to change or delete the code (if you made a mistake when entering it:) The selected ICD-9 code is displayed, as well as its description:



Below this box is a second box showing each of the tests you have ordered on the specimen. The CPT code and the description of each test are listed. Under the column ICD-9 Links, you will find either the number (1-8) of the ICD-9 code that corresponds with this test, or an alert in red. You will not be able to select OK from this screen until the alerts no longer appears; either by pressing cancel and removing the test, or fixing the error with the ICD-9 code.

The most common alert is **NOT ALLOWED**. This is triggered when there seems to be no link between the test you have ordered and any one of the ICD-9 diagnosis codes of the patient. The other alerts are used when a match is found, but special conditions are not met. These alerts display the number (1-8) of the ICD-9 code, as well as one of these messages in red:

GENDER: The patient is of the wrong gender for this test. Some tests just don't make sense when performed on a man instead of a woman, or vice versa.

NEED DOB: The test can be ordered under certain age conditions, but SchuyLab cannot determine the patient's age. Enter a Date of Birth, and this message will disappear.

NEED 4 DGT: SchuyLab cannot tell if there is a link between the diagnosis and the test. You will need to enter a fourth digit onto the ICD-9 code before SchuyLab has enough information to let you accept the test.

NEED 5 DGT: As above, but a fifth digit is required for SchuyLab to have enough information. This error and the above error occur when there are multiple variations of an ICD-9 code with slightly different fourth and fifth digits.

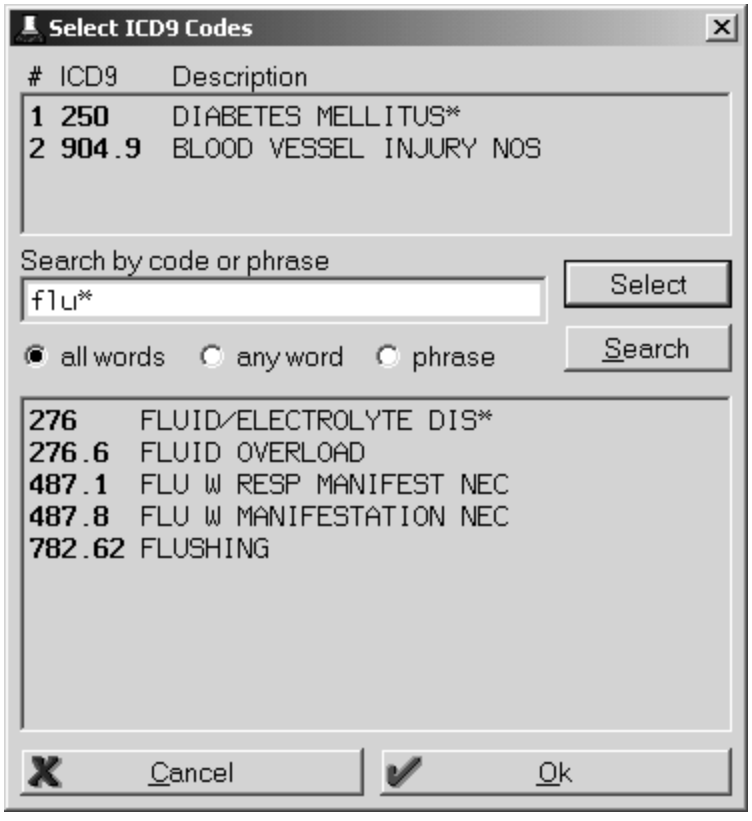
TOO OLD: The patient is too old to meet the certain age requirements of this test.

TOO SOON: This test can only be ordered once in a certain number of days for this diagnosis, and it has not been the proper amount of time since the test was last ordered.

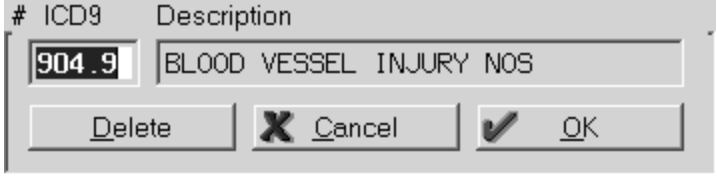
TOO YOUNG: The patient is not old enough to meet the special age requirements of this test.

Two special buttons adorn the bottom of the box. "**ICD-9…**" brings up the Select ICD-9 Code box, which will make it easier to change an ICD-9 code if it was entered in error. "**OVerride**" will allow you to go pass the ICD9 check and let you continue if you have the proper security clearance.

There are close to 17,000 current entries in the ninth edition of the International Classification of Diseases. Now perhaps your lab may not use all 17000 codes, but it is aggravating to page through thousands of entries to find a match for the diagnosis your doctor scribbled down. The *Select ICD-9 Codes* box allows you to search your ICD-9 database by several methods to fill out up to eight diagnoses.



The small box at the top lists the current ICD-9 codes assigned to the patient and their descriptions, up to a maximum of eight. Selecting one of the codes will bring you a smaller box, allowing you to change or delete the code (if you made a mistake when entering it:)



Below this box is the *Search by code or phrase* search field. If you type in the first three digits of an ICD-9 code, the master list of ICD-9 codes will appear below showing all the codes that begin with those three digits. The more digits you type, the more the list narrows down. If the list contains multiple items, select one to add it to

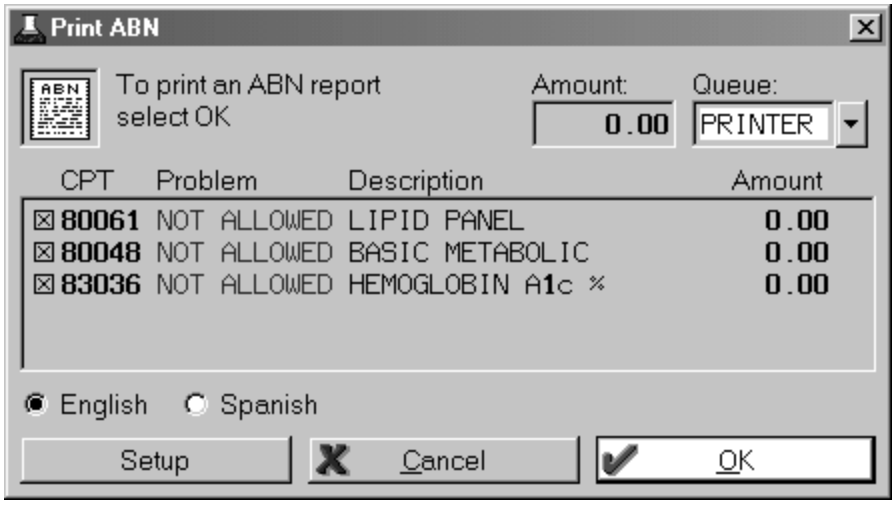
the patient's list of diagnoses. If the list has a single ICD-9 code, press the Select button or the Enter key to place the code into the list.

This box includes a powerful search engine, in case the doctor provided a written diagnosis instead of a code. Typing letters into the search field (the long, thin field) will display the ICD-9 codes that begin with those letters in the box below. However, if you do not know the exact first letters of the description, you can type a series of words and press the Search button. You can tell SchuyLab to search for all the words you have typed in any order, any of the words you have typed, or the complete phrase of words by selecting one of the three radio buttons below the search field.

There is a special symbol that you can use to receive even more information from this search program. If you were to type *card* into the search engine, SchuyLab would display all the ICD-9 codes with *card* in the description, as well as all their sub-codes. However, what if you wanted to find all the codes dealing with cardiac and cardiovascular? Rather than typing both words out and selecting "any word", you can type *card** into the search field. The * tells SchuyLab to search for any word in the ICD-9 description that begins with *card*.

Using the search engine and the ability to quickly find the correct code, you can easily enter and update the doctor's ICD-9 codes. The box also allows you to quickly find and fix any errors made when originally typing in the codes. The Select ICD-9 Code box can also be found in **Change Demographics**, under the button marked **List**.

The second button, Override, will skip the Medical Necessity alert and allow you to proceed: However, a box will pop up and prompt you to print out an Advanced Beneficiary Notice (ABN). It is suggested that you then print out this form and have the patient sign it.



Be warned, however, that there is a good chance that some insurance payors will refuse to pay for the test if it is not medically necessary. Override will be grayed out unless you have Override Necessity security clearance.

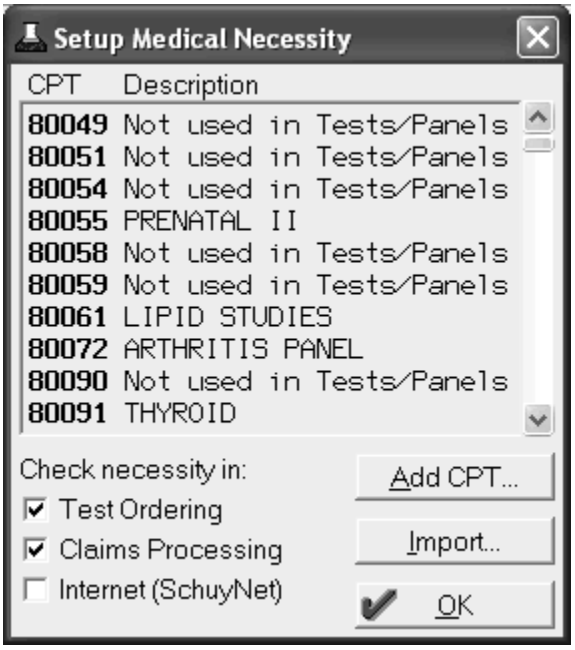
If you are unable to find a match in the ICD-9 list or the list of tests requested by the doctor, Schuyler House recommends calling the doctor for the correct information.

Medical Necessity Setup

At the heart of the Medical Necessity module is a series of links between the CPT codes of your lab's tests and the ICD-9 codes of your lab. When ordering a test, if no link is found between the test being ordered and the ICD-9 codes that the doctor has sent you, a medical necessity alert will appear. You must create these links before Medical Necessity will function properly. Also, you can setup special conditions for links where age and gender have an effect on whether or not certain tests apply. Setting up these links will take a large amount of time; therefore, SchuyLab also allows you to import a pre-made database that you have purchased from Schuyler House or another provider.

Create a New Link

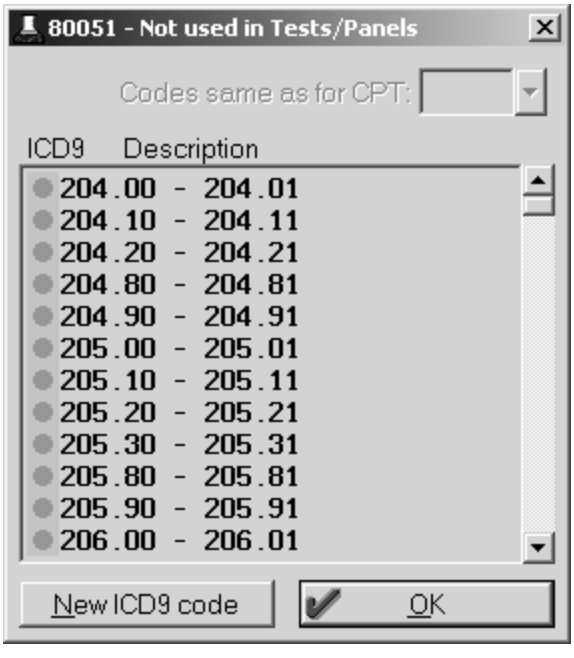
1. Select **F7. Features**. SchuyLab displays the Special Features screen.
2. Select **Medical Necessity**. SchuyLab displays Medical Necessity Setup.



This menu lists the CPT codes of your lab. If you wish to create a link for a new CPT code, select **Add CPT...**. If the new CPT code does not have a matching test in your database, the description will read "Not used in Tests/Panels."

The two check boxes below this list determine whether or not SchuyLab automatically checks for Medical Necessity errors while ordering tests and processing claims. If you select these boxes, SchuyLab will automatically display a Medical Necessity Alert if it notices a claim or test that does not match the diagnosis. If both boxes are left unchecked, you can still check Medical Necessity manually by selecting a button in the Edit Claims screen.

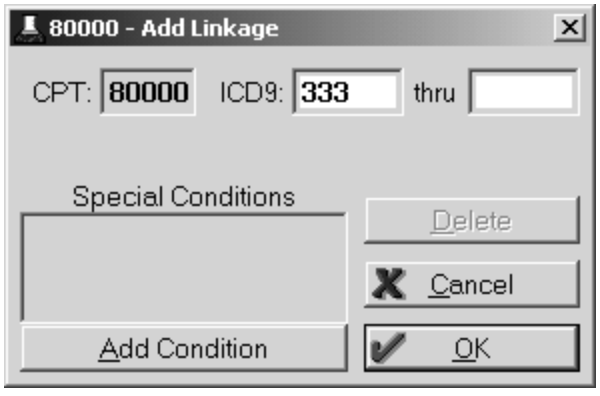
Selecting a CPT code from the list will take you to a second menu, showing the current links for the code.



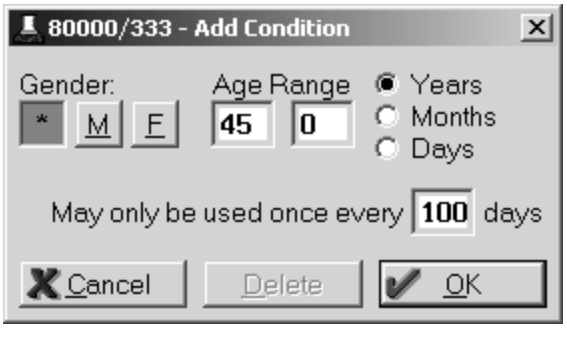
The current ICD-9 code links between the selected CPT code and your lab's diagnosis database are displayed. Each link is color coded: green dots show ranges where the test applies to the diagnosis and can be ordered without trouble, while yellow dots show ranges that can be ordered when special conditions are met.

Many of the CPT codes that you will use in your lab's operation have the same set of linkages. Instead of typing in all the same links, you can select a CPT code you wish to duplicate from the pull-down box at the top of the menu. **Note:** You may not select a CPT code if there are any linkages currently entered on the current code (you will have to delete them all). Also, you will be unable to add new linkages to the list without adding them to the main CPT code.

SchuyLab now proceeds to the Add Linkage box.



1. If you are creating the first linkage for a CPT code, you will have to type the code in yourself. If you used an existing code, the CPT field will be filled in and grayed out.
2. In the two ICD-9 fields, enter the first and last numbers of the ICD-9 range linking to the CPT code. If you only wish to link one ICD-9 number to a certain code, leave the second field blank.
3. Some tests that require certain conditions to be met before they apply to a patients' diagnosis. Any existing conditions will be listed in the menu marked **Special Conditions;** select one to update it. Each line in the menu is a single set of conditions: if all the conditions of a single set are met, the test will be acceptable.
4. To add gender, age, or time-based conditions, select **Add Condition**. SchuyLab will display the Add Condition Box.



Select Male, Female, or Unmarked if there are any gender restrictions with the test.

To enter a range of ages, enter the numbers to begin and end the range. You can select years, months, or days to measure the age of your patient. To signify that the exception applies to people at or below a certain age, leave

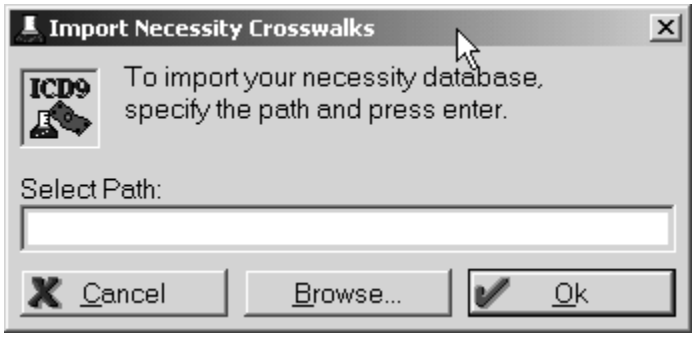
the first box blank. If the exception applies to people at or above a certain age, leave the second box blank.
If there is no reason to run a test more than a certain frequency, enter a number into the field marked **May be used only once every ___ days**. The test will cause a medical necessity alert when it has not been the required amount of time since the test was last ordered for this patient.
Press OK to return to the New ICD9 Code box.

5. Select OK when done. SchuyLab returns to the ICD-9 selection menu. Pressing OK a second time will return you to Medical Necessity Setup. Repeat steps 2-6 for all new links.

Import a Medical Necessity Database

When you purchase the Medical necessity module, you have the option of supplying your own database of ICD9 codes, or we can load a database for you. If you should decide to use your own, or purchase a database of codes from another source, you can easily import that database into SchuyLab. It is suggested that you contact SchuyLab Technical Support for assistance in this.

1. Select **F7 Features**. SchuyLab displays the Special Features screen.
2. Select **Medical Necessity**. SchuyLab displays Medical Necessity Setup.



3. Select **Import**. SchuyLab displays a box prompting you for the location of the database file.
4. Enter the path of the database file and select OK. The database will be automatically loaded into your system. Alternatively, if you do not know exactly where to find the database, selecting **Browse** will allow you to search your machine for databases.

Update a Medical Necessity Link

Medicare is constantly changing and adding codes as it sees fit. And there are many publications that will publish those changes on a quarterly basis. As you get those changes, you may want to take the time to update your current database.

1. Select **F7 Features**. SchuyLab displays the Special Features screen.
2. Select **Medical Necessity**. SchuyLab displays Medical Necessity Setup.
3. Select the desired CPT Code. SchuyLab displays the ICD-9 selection menu. Select the desired ICD-9 code or range. SchuyLab displays the Update Linkage box.
4. Make the desired changes.
5. If you want to update one of the link's conditions, select it in the Special Conditions list. SchuyLab displays the Update Condition box. Make any desired changes.
6. If there are any new conditions to the basic link, select **New Condition**. SchuyLab displays the Add Condition box.
7. Set Age, Gender, and Time requirements for the condition. Select **OK** when done.
8. Repeat steps 6 and 7 for all new conditions.
9. Select **OK** when done. SchuyLab returns to the ICD-9 selection menu. Pressing **OK** a second time will return you to Medical Necessity Setup. Repeat steps 3-8 to update another link.

Delete a Medical Necessity Link

1. From the Update Linkage box select Delete. SchuyLab will ask you if you really want to delete the link.
2. Select OK. SchuyLab will return to the ICD-9 selection menu.

To Delete an Exception

1. From the Update Linkage box select the undesired condition. SchuyLab will display the Update Condition box.
2. Select Delete. SchuyLab will ask you if you really want to delete the condition.
3. Select OK. SchuyLab will return to the Update Linkage box.

Other Sections of Medical Necessity

Medical Necessity has an effect on several other systems, though not to the extent of Order Tests. Here are changes to existing sections of SchuyLab:

In **Security**, a security clearance has been added: Override Necessity. Security Classes with this clearance will be able to override Medical Necessity Alerts. The Override button will be grayed out for Classes without the clearance.

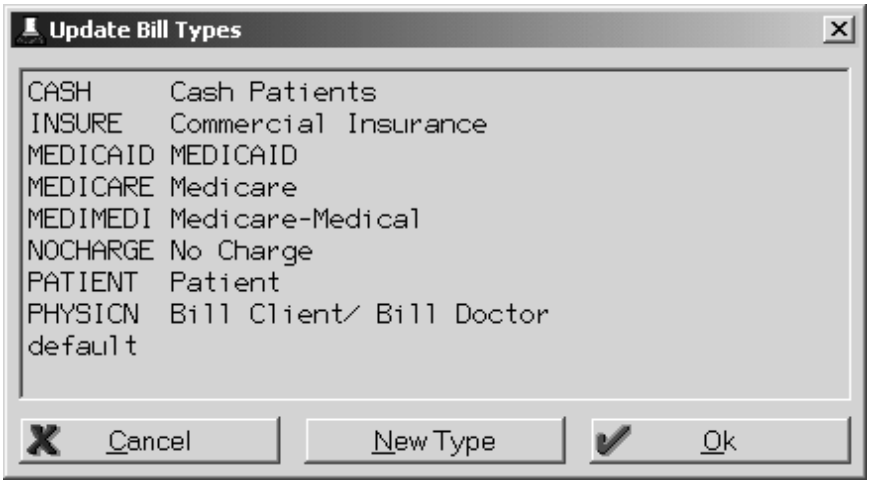
In **Billtype**, we've add a checkbox labeled Medical Necessity. If this box is checked, Medical Necessity will be active while ordering tests for patients with this bill type. If the box is not checked, patients using this bill type are not affected (see below for more details).

In the Billing module's **Edit Claims**, setting the claim from "Open" to "Ready" will trigger a Medical Necessity Alert if there are tests that do not correspond with the patient diagnosis. This automatic check will not occur if you have disabled Medical Necessity while processing claims (from Medical Necessity setup.) You can check the claims manually by selecting the new **Necessity** button on the right side of the screen.

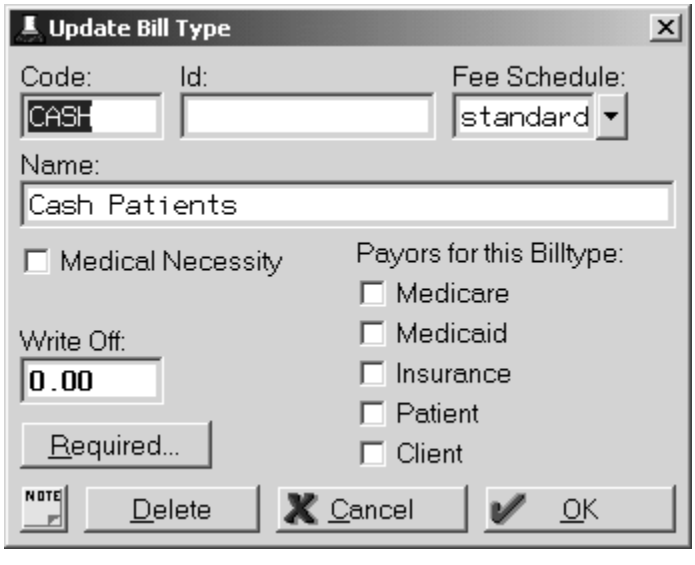
Turning Medical Necessity Off

There are times when you do not need to worry about the Medical Necessary Alert and having to override it. If the bill type is cash and the patient is paying or the insurance company will pay for everything (within reason of course) then how to turn off the alert?

Select **F8 Tools.**
Select **Setup.**
Select **Parameter ID Definition.**
Select **Bill Type**.



Select CASH in this list.



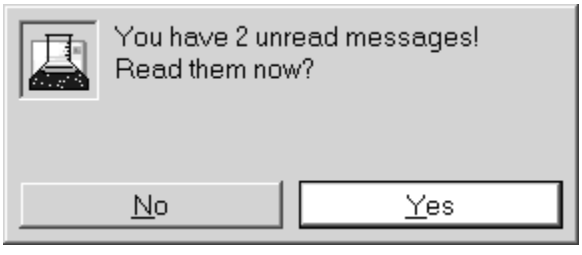
If you wish to turn the Medical Necessity Alert off, make sure the Medical Necessity box is NOT checked. You can do this for any of the bill types.

Appendix: Messages

SchuyLab Text Messaging allows the users on a SchuyLab system to send messages to one another. Messages can be sent to all users, or to specific individuals. It's not e-mail – it only works within the SchuyLab system, on SchuyLab stations within your lab – but it works similarly to e-mail.

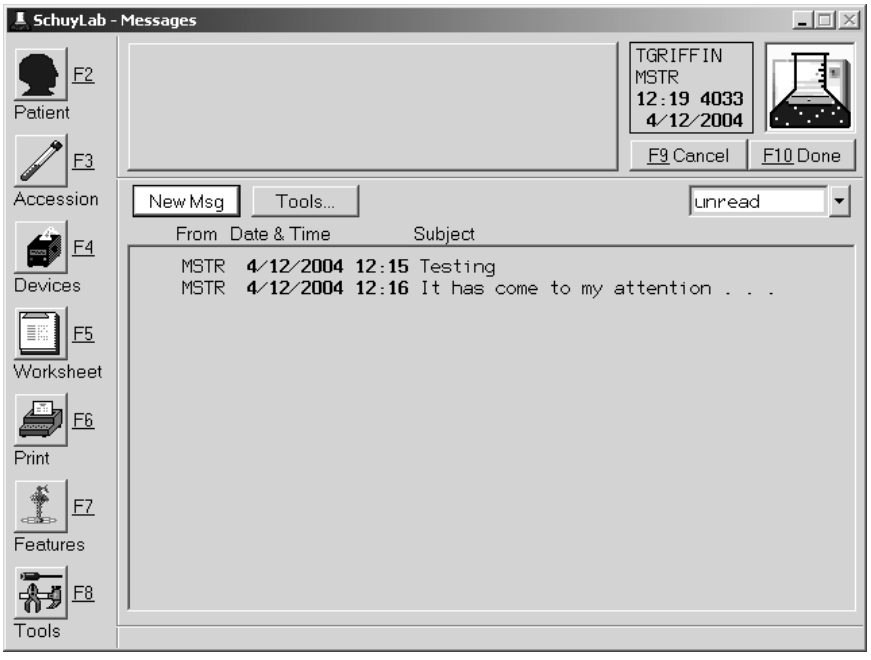
Reading Mail

When you first log on to SchuyLab, Text Messaging tells you if there are any messages waiting for you:



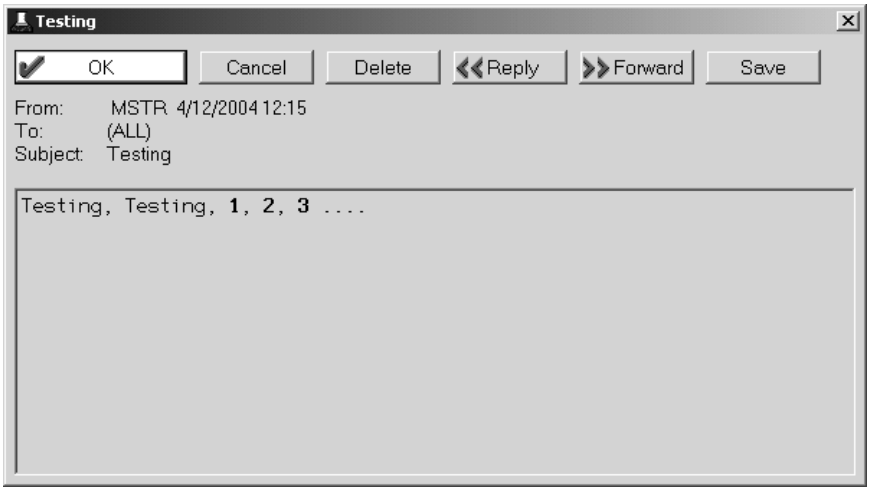
If you select **No,** the dialog box will simply disappear and you can continue using SchuyLab as you normally would. The unread messages will be saved until the next time you log onto SchuyLab or until you go into the **MessaGes** function and read them through there.

If you select **Yes,** however, SchuyLab displays the Messages screen:



The Messages screen displays the dates, times, and subjects of all the messages waiting to be read (along with the User ID of the person posting the message). The pull-down list at the top right allows you to look at 'unread', 'read', and 'deleted' messages; 'unread' messages are the default.

To read a message, simply select that line with the mouse. SchuyLab brings up a box with the subject of the message at the top, and the text of the message displayed.

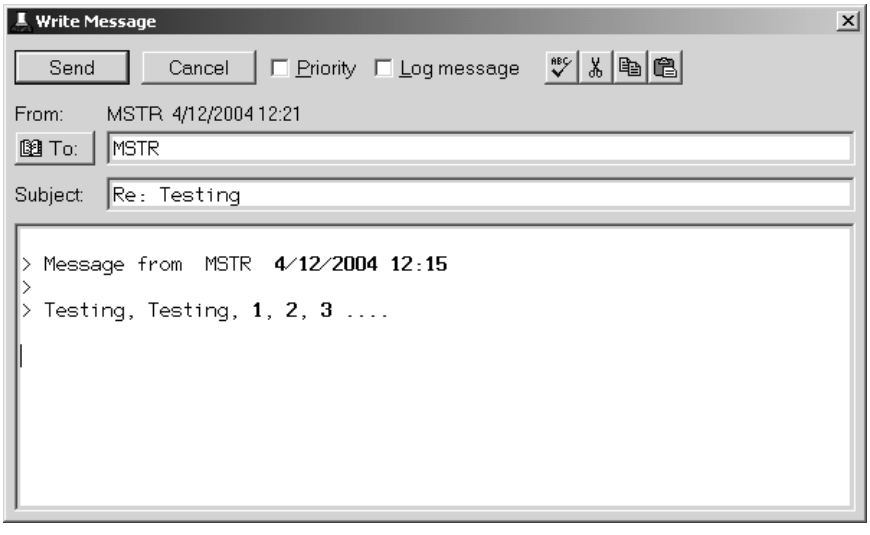


At this point, selecting the **OK** button moves the message from 'unread' to 'read' status. SchuyLab then replaces this message with the next unread message, and so on until all unread messages have been displayed.

If you wish to keep this as an 'unread' message, select **Cancel.**

To remove the message altogether – which, if you receive many messages daily, would be prudent – select **Delete.** SchuyLab will delete the message from your 'read' and 'unread' lists. (It is still available on the 'deleted' list, and can be undeleted if you've been too hasty.)

To send a message back to the message's author, select **Reply.** SchuyLab will display the Write Message screen.



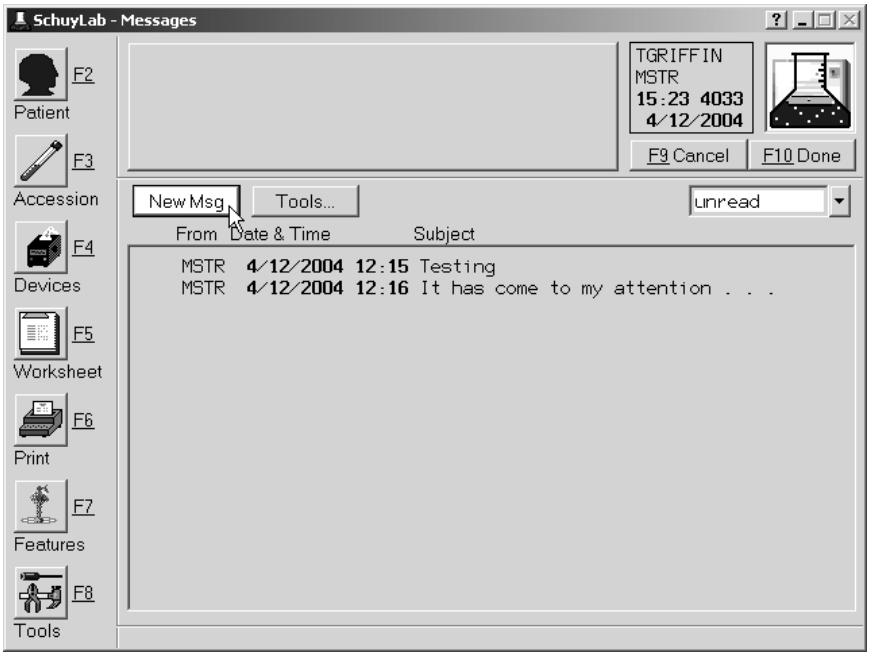
Type your response in the large white text area, and then select the **Send** key. Select **Cancel** if you choose not to reply at this time. (You can always reply to a message as long as it's among your 'unread' or 'read' messages.)

To send the message on to another SchuyLab user, select the **Forward** key. SchuyLab displays the same Write screen as for replies. (In a sense, a Forward *is* a Reply, but to someone other than the original author.)

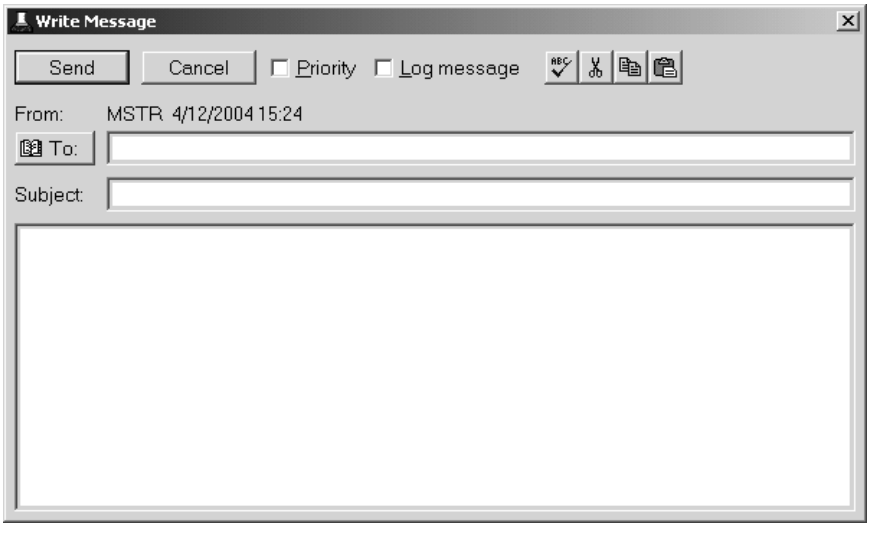
Sending new mail

To send new mail to others on the SchuyLab system, you need to have the proper security level to permit you to generate messages. This is done when Security Levels are defined for your SchuyLab system, and is discussed in the Sec. 8 – Managerial Functions. Assuming you have the security clearance to generate messages on

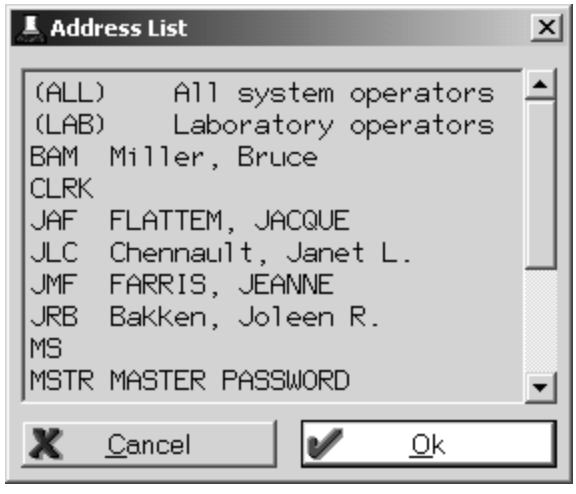
SchuyLab, go to **F7. Features** and select the **MessaGes** icon. SchuyLab displays the Messages screen:



This is the same screen that was displayed when we reviewed our messages, back when we logged onto SchuyLab. But now we're sending a *new* message, so we select the **New Msg** button. SchuyLab displays the Write Message box:



The first field, labeled "To:", is the message's address – in this case, the SchuyLab user ID of the recipient. If you know the user ID of the person you're messaging, go ahead and type it in this field. Or select the **To** button to see the Address List, which is a list of all users on your SchuyLab system:



You may select one of the users on the Address List, or more than one – as many as you wish. The message would then be sent to all of them at once. Simply click the mouse on each intended recipient.

There's also the option of sending a message to *all* users on your SchuyLab system. This is done by selecting the first line on the Address List, the one labeled "(ALL)". If your SchuyLab system has a great many users, this can be a lot easier than selecting each individual name from the List. Finally, there's the option of sending a message only to those SchuyLab users that have been designated "lab staff." This is done by selecting the second line on the Address List, the one labeled "(LAB)". SchuyLab users are designated as "lab staff" when their user ID and password were assigned to them, by your system administrator. (This will be discussed in greater detail in the section on Setup and Tools, below.)

The next field is the subject line for the message: a quick summary of the content of the message. This line is displayed on the Messages screen when you first take a look at your messages, so it's important to not leave this line blank.

In the large white area, type the text of the message you wish to send. You can type as you would with any word processor program… you can even cut-and-paste text from other programs into the text area. The four icon-buttons allow you to spell-check, cut, copy, and paste text.

The first check box at the top of the Write Message box allows you to designate this message as a **Priority** message. Normally, a user isn't told of new messages until

she logs onto the SchuyLab system. A Priority message doesn't wait for that: if the recipient is currently logged onto a SchuyLab station, she's immediately notified when she's sent a Priority message.

The second check box lets you **Log Message** – i.e., keep a permanent record of the message having been sent. SchuyLab Messaging has incorporated into it the concept that all messages are not of equal importance. There are messages that will read: "Preventative Maintenance performed on the Hemo analyzer. 9AUG04. JLC" There are also messages that will say, "There's a new pizza place that opened last week. Do you want to try it tomorrow for lunch?"

In order to allow for this human element in its Messaging module, SchuyLab has two statuses of messages: Logged and Unlogged. An unlogged message is a casual communication, requiring no response. It's existence is not recorded in the Messaging module. A logged message is an official communication: A record is kept of all logged messages, when they are sent, and to whom they are sent. A printout may be obtained of all logged messages under Tools. For trivial messages, of course, this is often unnecessary; but if you're the system administrator alerting the staff of a problem, you may want to prove later that the message was sent to the entire staff. Simply check this box to log the message.

When all the fields are complete, click the mouse on **Send.** SchuyLab sends the message to all the users listed in the "To:" field.

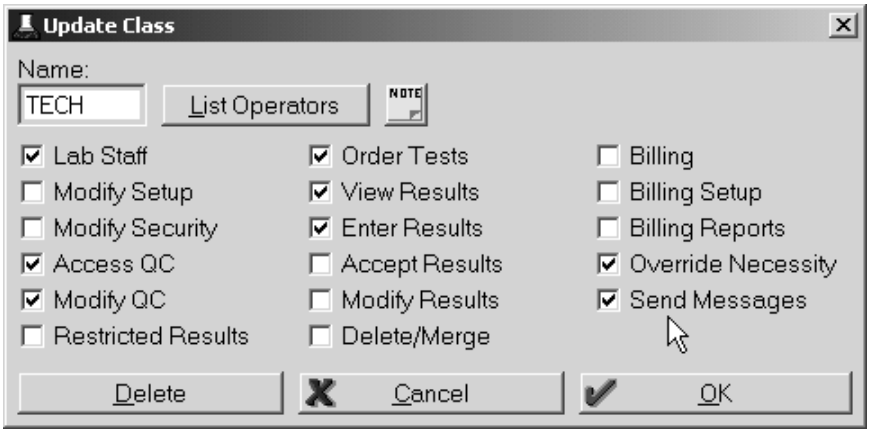
If you decide, after all, that you shouldn't send this message (I've written messages like that…), click the mouse on **Cancel.**

SchuyLab then returns to the Messages screen.

Setup and Tools

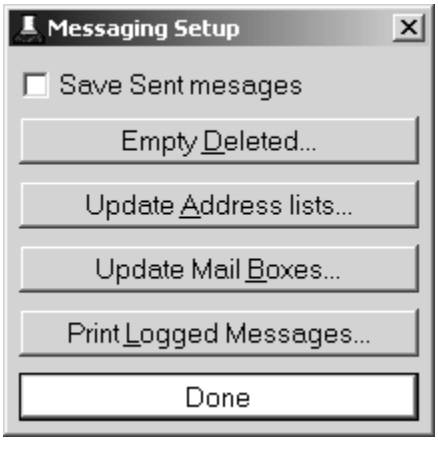
There is only one place outside the **MessaGes** icon in **F7. Features** that needs to be set properly for SchuyLab Text Messaging to work fully. And that is the settings for Lab Staff and the permission to send messages.

The security levels (user ID, password, operator classes) for your SchuyLab system are defined in **F8. Tools > Security Levels.** To remind you, each user is assigned to a particular class; these classes are defined using the **Class** icon in Security Levels. Each class of user can be defined at that point as "lab staff" … or not. This is the first check box of the first column.



In addition, each class of user must be given (or denied) permission to send messages. This is the fifth check box of the third column. Only users belonging to a class with this box checked can send new mail through SchuyLab Messaging.

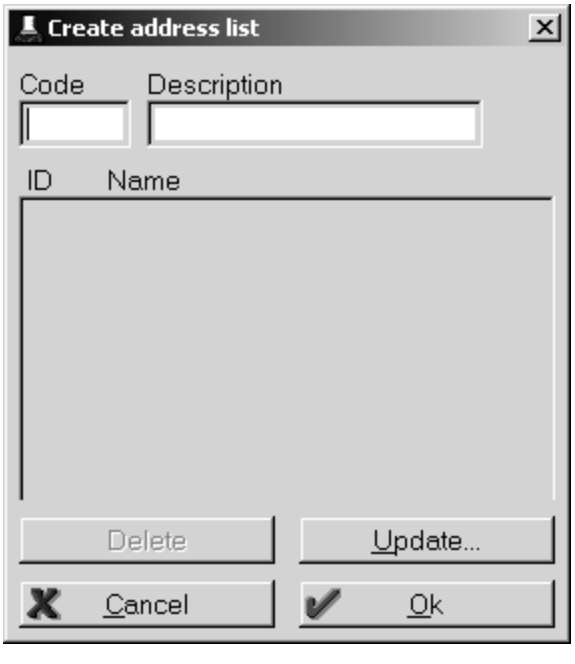
When you open your SchuyLab message, you may notice a bar called **Tools**. This is to help organize your mailbox.



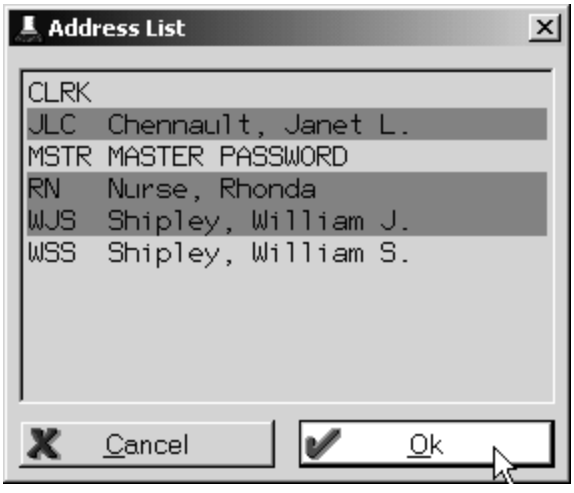
Save Sent Messages	**When this box is marked, you will save a copy of your sent message (if you have the security to send messages).**
Empty Deleted	**Selecting this bar will empty your delete box or folder of all your deleted messages.**
Update Address lists…	**In SchuyLab messaging, you have the options of sending messages to everyone, or to individuals. Using** Update Address lists… **you also have the option of sending messages to certain individuals by creating an message group.**

Select **Update Address lists…**

Select Add and the Create Address List box comes up.



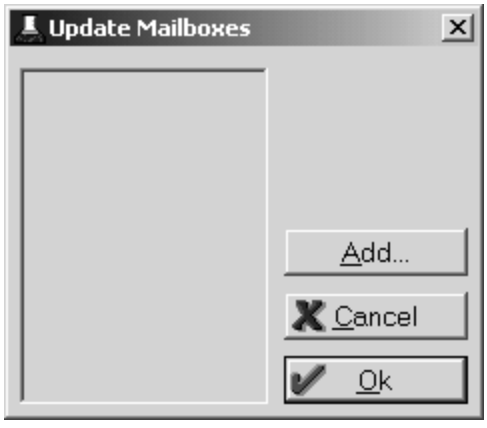
Type in a code name for this list (i.e. MANGRS), and fill in the description (i.e. MANAGERS). Click the Update button and the address list box opens. Click on those names you want included in your new list,



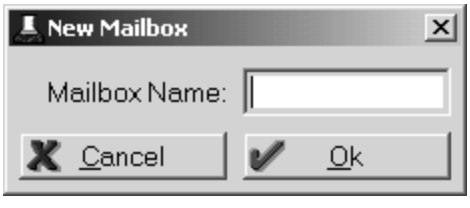
Click OK. You now have a new group of select people to send messages to.

Update Mail Boxes… **Much like emails, you may wish to set up boxes to classify your mail (i.e. Manager, personal, etc.).**

Select the **Update Mail Boxes…** bar to update your mailboxes.



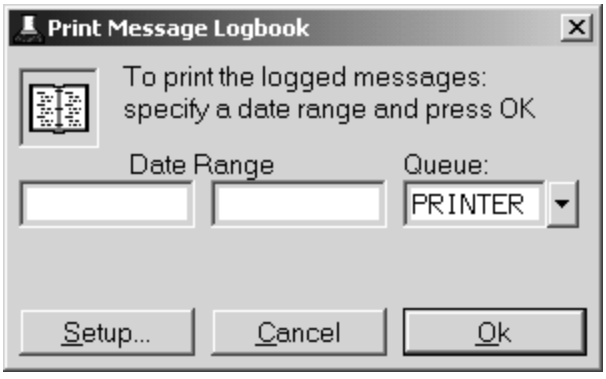
Select **Add** to add a new mail box.



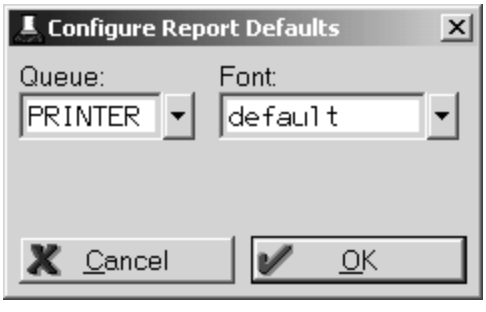
Type in the name for the new mailbox and then select OK. Continue adding mailboxes as you want them. When you have added all you want, select OK.

Print Logged Messages

When a new message is marked as a "logged message", alerting the staff of a problem, you may want to prove later that the message was sent to the entire staff. Here you can print a log file of those messages sent showing date and time sent, and to whom they were sent. A logged message will also ask the recipient(s) to "answer" back that they have received and read the message. There is one bit of setup that must be done before you can print the logged messages. When you select Print Logged Messages, go into Setup;

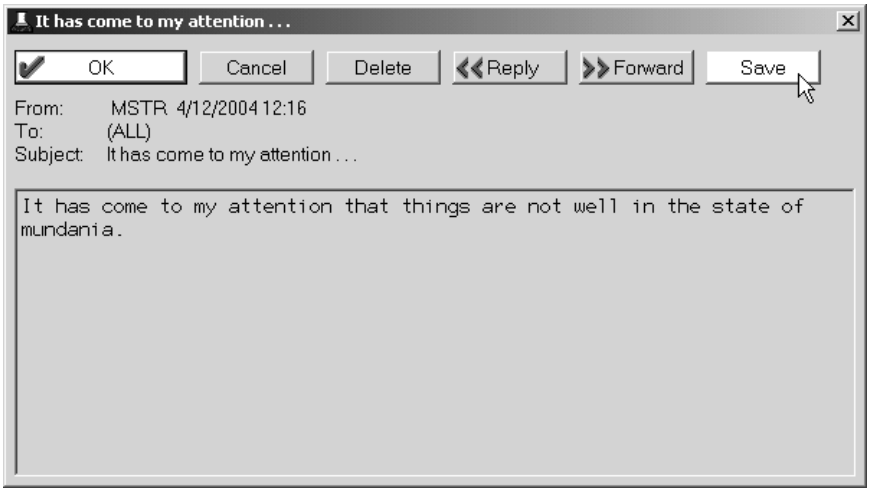


You then can set the default settings. Even if you don't make any changes, press the OK button. This will only need to be done one time. If you receive an error message, you forgot to setup this logbook.

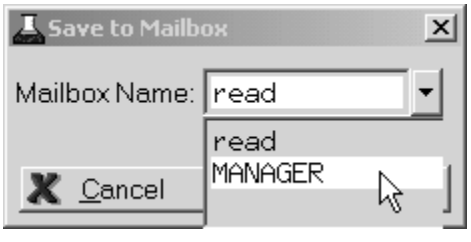


Saving and Deleting Messages

So the boss has sent out a message to the entire lab and you want to save it in a folder (or mailbox) just for these kinds of memos. You've made a new mailbox (see above) and now what? First, bring up the message you need to save.


It has come to my attention . . .
OK
Cancel
Delete
Reply
Forward
Save
From: MSTR 4/12/2004 12:16
To: (ALL)
Subject: It has come to my attention . . .
It has come to my attention that things are not well in the state of mundania.

When you click on the save button, it will ask you where to save the message. By clicking on the scroll down arrow on the right, it will give you your options. Save your message in this mailbox and continue working. You can always move your messages from a specific mailbox back to the "read" box, or another mailbox of your choice.



If this is a message you don't want to keep, you can also choice to send it to the delete mailbox. Remember, your deleted mail will remain in the delete mailbox until you manually tell the SchuyLab Message function to delete it.

Appendix: Microbiology

Microbiology

As with any good thing, some advance preparation is needed before Microbiology can be used to its fullest potential. There are four types of Microbiology tests; Cultures, Isolates, Quantity and Sensitivity. Most of the setup is done as part of Test Definition and Panel Definition, with which you are already familiar; the remainder is done in the Microbiology screen in **F7. Features.** Don't worry, we'll take it step by step.

Setting Up Cultures as Tests

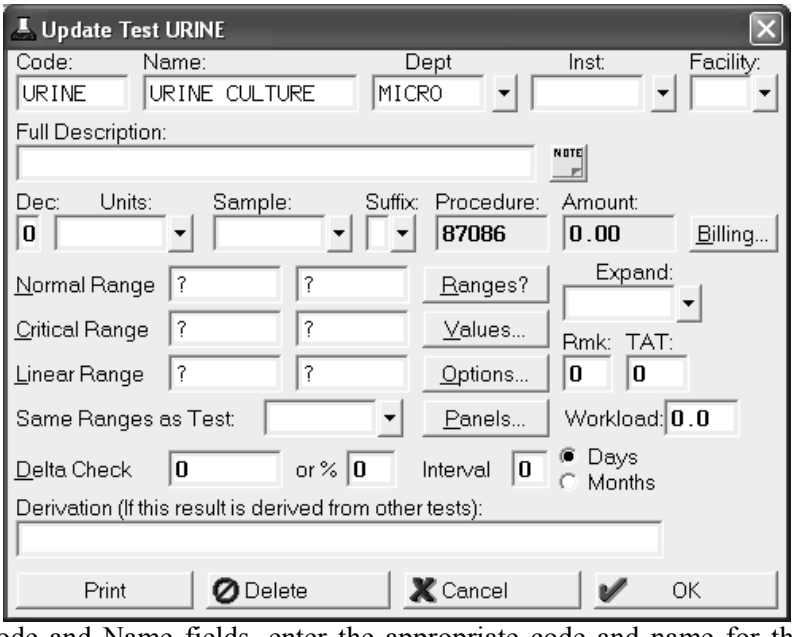
The first step in setting up Microbiology is to define the tests that will use it—that is, the cultures (Throat Culture, Eye Culture, Urine Culture, &c.). This is done through Test Definition:

Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Test Definition**.

SchuyLab displays the Update Tests list box.

If your culture tests are already defined, select one of them. If you need to create your culture tests, select **New.**

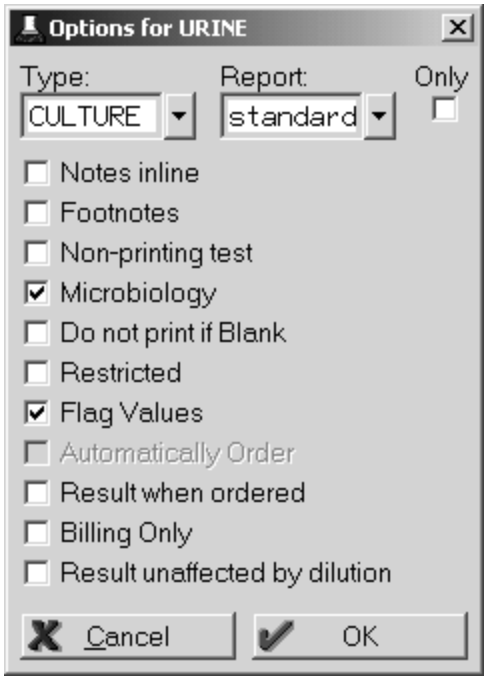
SchuyLab displays the Update Test box.



In the Code and Name fields, enter the appropriate code and name for the culture you're defining. (In the above example, we're defining Urine Culture.)

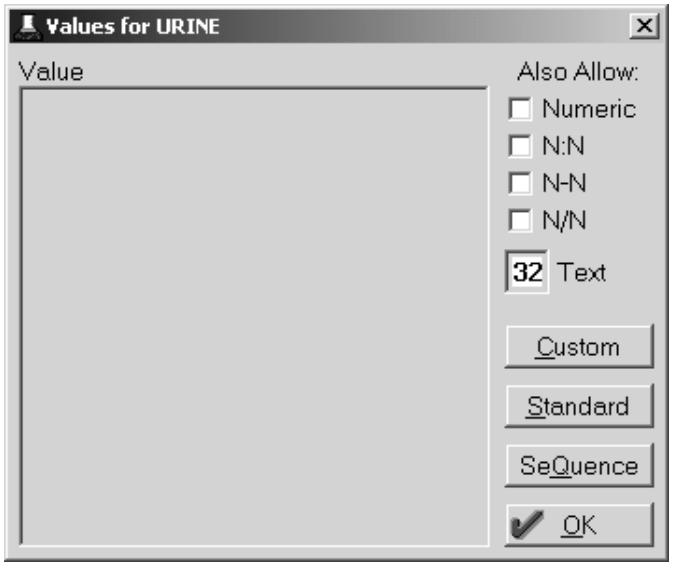
Two further steps are necessary to complete this culture test. First, it has to be *identified* as a culture test. Second, we need to define how much space you want for your test results on this test.

To identify this test as a culture, select the **Options** button. SchuyLab displays the Options for [Test] box, which defines how this particular test is reported.



In the Type field, select "CULTURE". From the check boxes, select the box labeled "Microbiology", and put a check mark there. When complete, select **OK.**

To define space for your test results, select the **Values** button. SchuyLab displays the Values for [Test] box, which defines non-numeric test results for this test.



For a Microbiology test, you probably want the power to type in whatever result you want. In that case, in the field labeled "Text", type in the number of characters (maximum of 32) you wish to allot for your results. This includes letters, numbers, and the spaces between words. You may also want to set up a list of "values" using the Custom or Standard buttons.

When done, select **OK.** When the culture test is set up satisfactorily, select **OK** again.

Setting Up Sensitivities as Tests

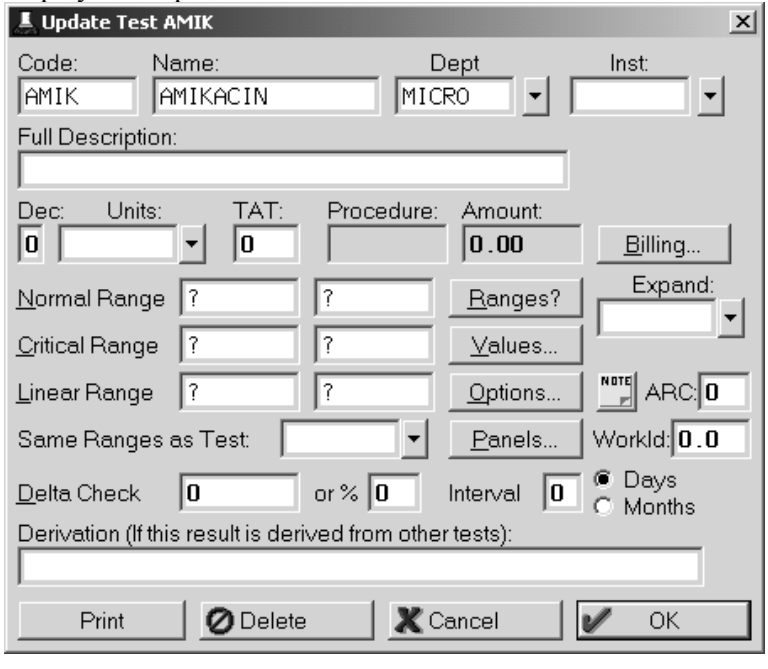
The next step in setting up Microbiology is to define the antibiotics that will be reported as sensitivities: everything from Amikacin to Vancomycin. This is likewise done through Test Definition:

Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Test Definition**.

SchuyLab displays the Update Tests list box.

If your sensitivity tests are already defined, select one of them. If you need to create your sensitivity tests, select **New.**

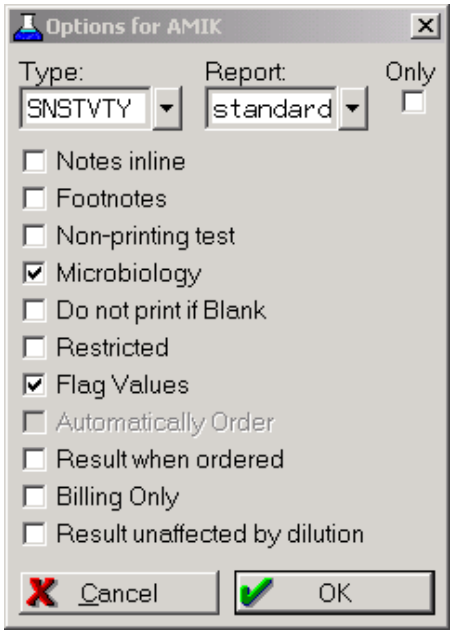
SchuyLab displays the Update Test box.



In the Code and Name fields, enter the appropriate code and name for the antibiotic you're defining. (In the above example, we're defining Amikacin.)

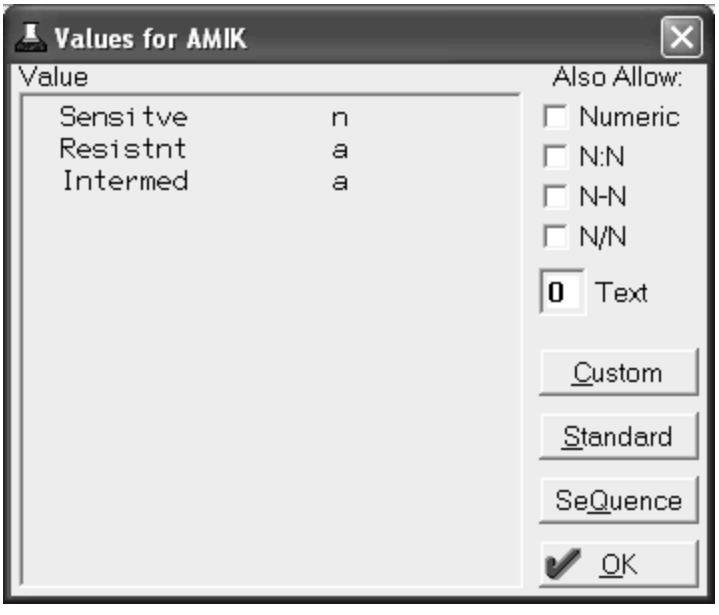
Two further steps are necessary to complete this sensitivity test. First, it has to be *identified* as a sensitivity test. Second, we need to define the possible results: Resistant, Intermediate, or Sensitive.

To identify this test as a sensitivity test, select the **Options** button. SchuyLab displays the Options for [Test] box, which defines how this particular test is reported.



In the Type field, select "SNSTVTY". From the check boxes, select the box labeled "Microbiology", and put a check mark there. When complete, select **OK.**

To define your test results, select the **Values** button. SchuyLab displays the Values for [Test] box, which defines non-numeric test results for this test.



Select the **Standard** button to bring up SchuyLab's standardized list of non-numeric test values. From the list, select Sensitve, Resistnt, and Intermed, then select **OK.** The Values for [Test] box will display the three possible values, as in the illustration above (to set the "normal" and "abnormal" flags see Sec. 4 – Tests and Panels). Select **OK.**

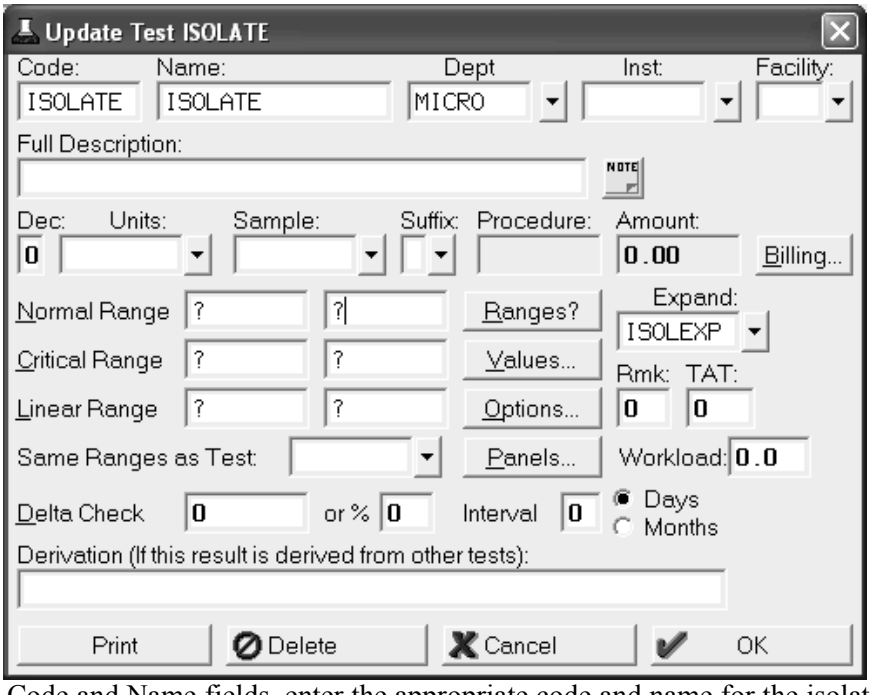
When this antibiotic test is complete, select **OK.** Continue this on all the antibiotic tests you intend to test with.

Setting Up the Isolate Test

The next test needed for Microbiology is the Isolate test. This is a special test that SchuyLab needs to permit entering the Microbiology results. It, too, is set through Test Definition:

Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Test Definition**.

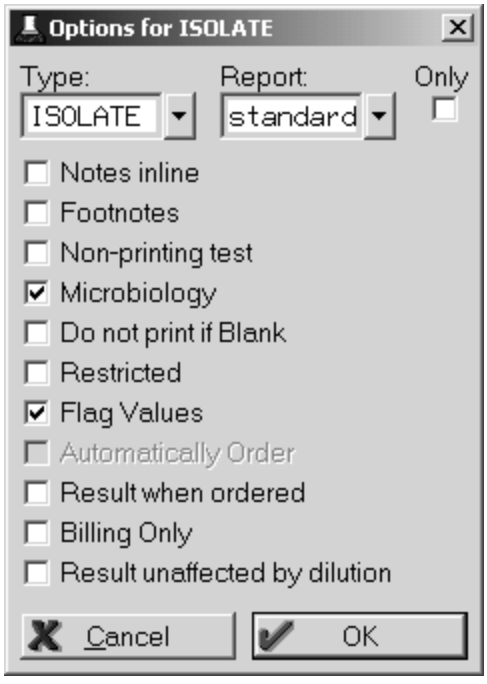
SchuyLab displays the Update Tests list box.
Select **New.** (I'm assuming you don't already have an Isolate test defined.)
SchuyLab displays the Update Test box.



In the Code and Name fields, enter the appropriate code and name for the isolate test. I recommend using "ISOLATE" as the Code, and either "Isolate:" or "Organism:" for the Name. (Remember, the Name is what prints on the patient's report.)

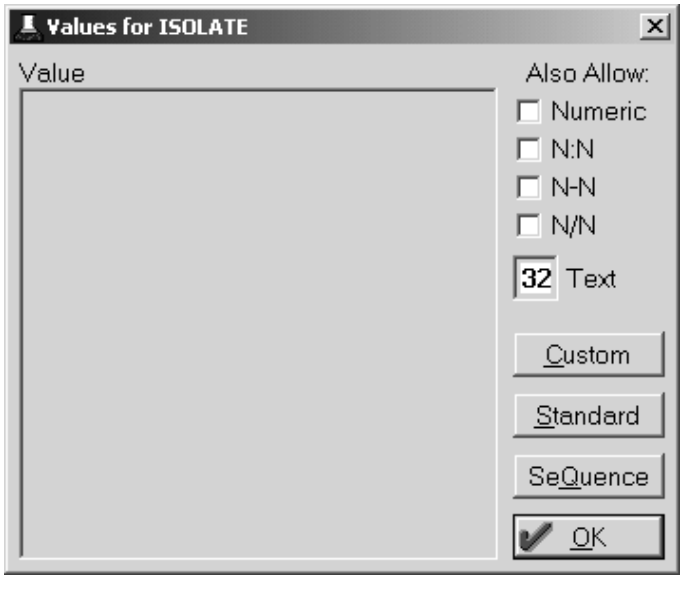
Two further steps are necessary to complete the Isolate test. First, it has to be *identified* as the Isolate test. Second, we need to define how much space you want for your test results on this test.

To identify this test as the Isolate, select the **Options** button. SchuyLab displays the Options for [Test] box, which defines how this particular test is reported.



In the Type field, select "ISOLATE". From the check boxes, select the box labeled "Microbiology", and put a check mark there. When complete, select **OK.**

To define space for your test results, select the **Values** button. SchuyLab displays the Values for [Test] box, which defines non-numeric test results for this test.



In the field labeled "Text", type in the number of characters (maximum of 32) you wish to allot for your results. This includes letters, numbers, and the spaces between words. Since this space is going to be filled with the name of the organism you've isolated, we recommend using the full 32 characters.

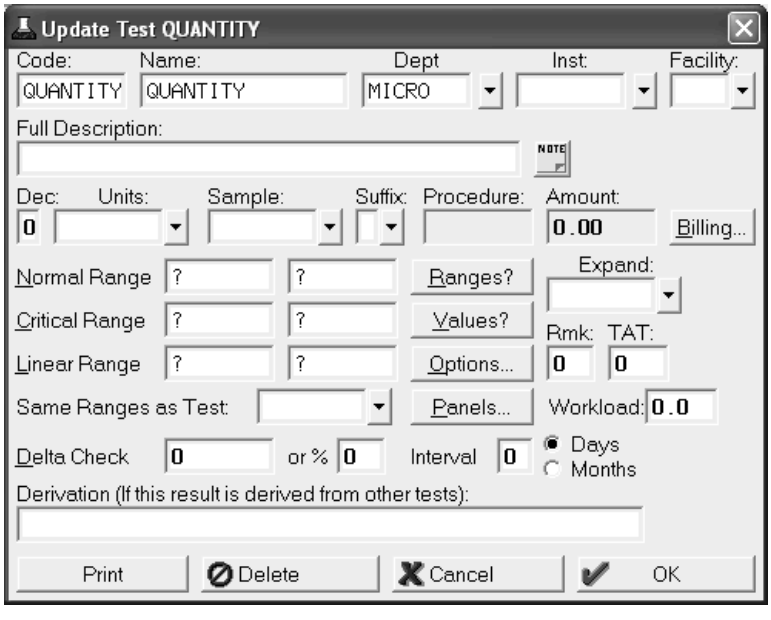
When done, select **OK.** When the Isolate test is set up satisfactorily, select **OK** again.

Other Tests

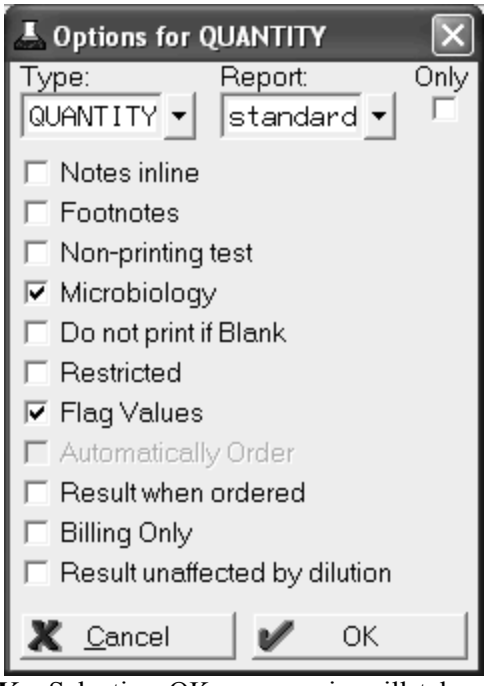
The Isolate panel can consist of up to four tests; Quantity, Gram Stain, Oxidas and Catalas. These tests also require some special setups before they can be used. As they are all setup the same way (after they are created), let's look at one of them - Quantity.

Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Test Definition**.

SchuyLab displays the Update Tests list box.
Select **New.** (Assuming you don't already have the Quantity test defined.)
SchuyLab displays the Update Test box. You will set this test up in the same manner you have other Microbiology tests (i.e. URINE).



Select the **Options** button. SchuyLab displays the Options for [Test] box, which defines how this particular test is reported. Under the Options button, the type of test should be "Quantity". If not, click on the small arrow on the right side of the box and scroll down the Quantity.



When done, select **OK.** Selecting OK once again will take you out of the Update Test Screen. After you have set up all four of these tests (if you plan to use them) click on **Done** and you are out of the Test Definition Screen.

Setting Up Sensitivity Panels

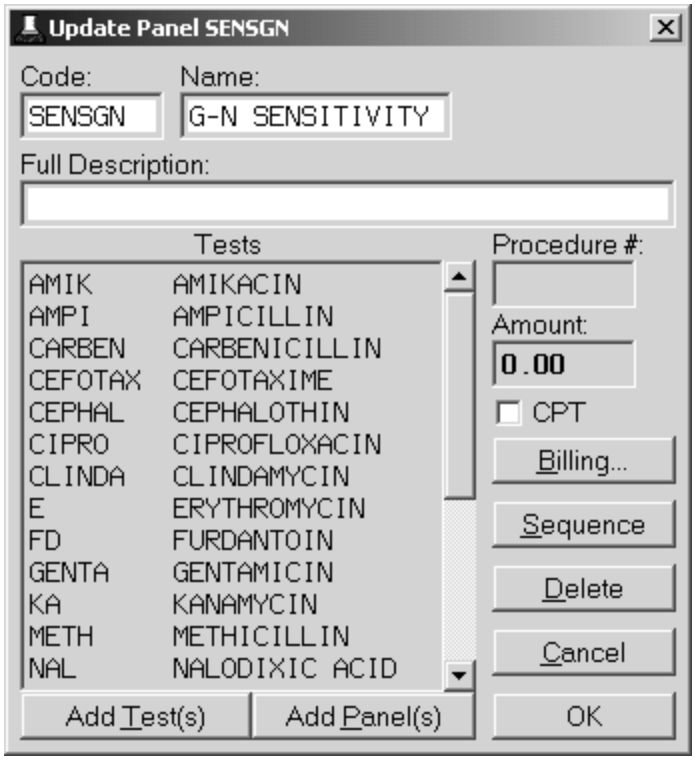
The next step in setting up your Microbiology is to define the sensitivities appropriate to your lab. Sensitivities are set up as panels, in which you place the antibiotic tests; this is done through Panel Definition. You will certainly want separate sensitivities for Gram Positive and Gram Negative organisms; you may also want to set up a separate sensitivity for Urine and other special cases.

To set up sensitivity panels:
Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Panel Definition**.

SchuyLab displays the Update Panels list box.

If your sensitivity panels are already defined, select one of them. If you need to create your sensitivity panels, select **New.**

SchuyLab displays the Update Panel [Panel name] box.



In the Code field, type the code for the sensitivity panel you're defining. SchuyLab is programmed to recognize any panel beginning with the letters "SENS" as a sensitivity panel, so be sure your codes start that way.

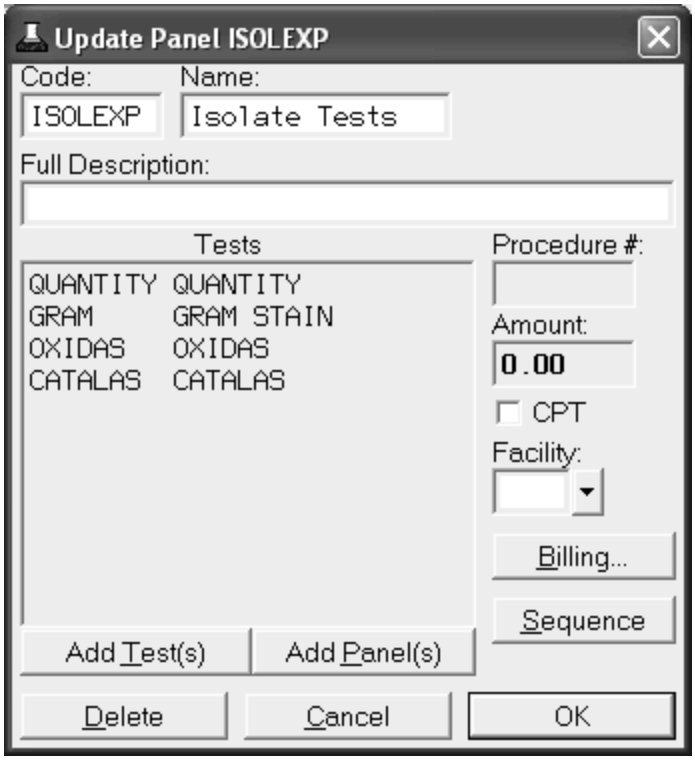
In the Name field, enter a brief description of this sensitivity panel (Gram Positive, for instance). Then select **Add Test(s)** to add the antibiotic tests for that panel. When complete, select **OK.**

Setting Up Isolate Panel

The next to the last step in setting up Microbiology is creating the Isolate panel.

Select **F8. Tools**.
Select **Set-Up.**
Select **Test & Panel Definition**.
Select **Panel Definition**.

Create an Isolate panel and add the tests to it as we have pictured below.



Setup Microbiology

The final part of setting up Microbiology is done through what is, appropriately enough, called Setup Microbiology. This function permits you to define the actual organisms you expect to isolate, and link them to a specific sensitivity panel (e.g., Gram Negative organisms to the panel of Gram Negative antibiotics).

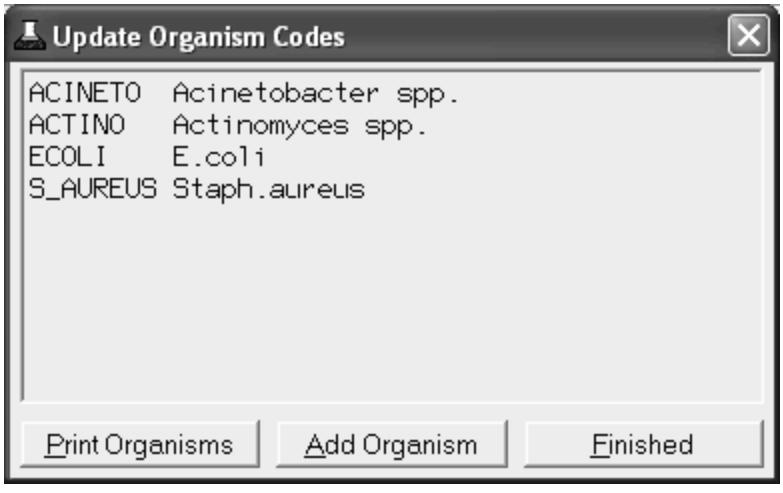
To access the Microbiology Setup function

Select **F7. Features**.
Select **Microbiology**.

SchuyLab displays the Microbiology menu screen.

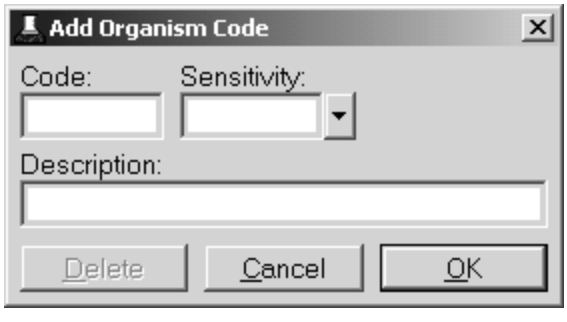
Select **Setup Microbiology**

SchuyLab displays the Update Organism Codes box, listing the organisms currently defined in your system.



The first column shows the code used by your lab to identify each organism. This can be a number, a letter, or any combination thereof—in short, an abbreviation, whatever's most comfortable for your lab. The second column shows a more complete description of the organism; this is what's printed on the patient's report.

To change one of the defined organisms, select it from the list. To define a new organism, select **Add Organism.** Either way, SchuyLab displays the Add/Update Organism Code box.



In the Code field, type in your code for the organism. In the Description field, type in the full name of the organism (that is, the form you want to print on the patient's report).

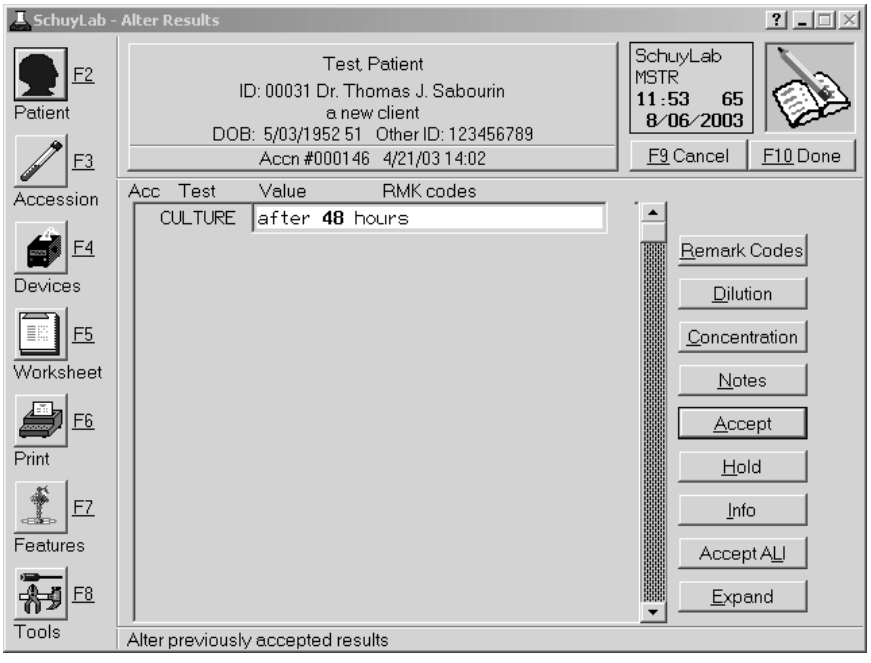
From the Sensitivity list field, pull down the list of panels and select the sensitivity panel you wish to link with this organism.

When complete, select **OK.** When all your organisms are defined to your satisfaction, select **Finished.** (If you wish to print a list of your defined organisms, select **Print Organisms** first.)

Entering Microbiology Results

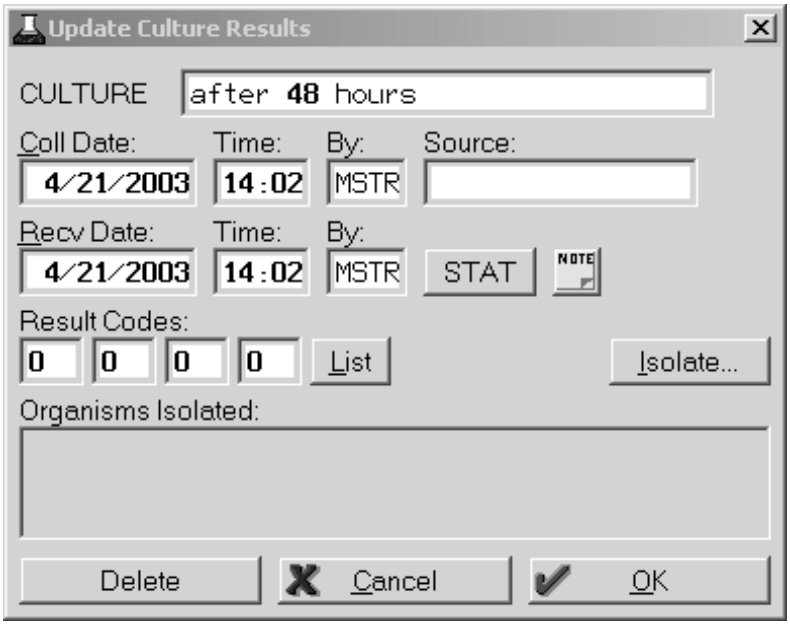
Once setup is complete for Microbiology, you're ready to enter and accept results. This can be done through either the Patient Processing Screen (via Alter Results) or a worksheet—just as with other test results. But wait! Wouldn't you enter the results from the Enter Results screen like you do for other tests? We suggest not to. Once you accept the results, the test will disappear from the Enter Results screen. IF you have other organisms that show up at a later time, you will still have to enter those results through Alter Results.

Let's take a concrete example. We've ordered a culture to be done on a given specimen. Now we want to enter the results. From the Patient Processing Screen, we select **Alter Results.** SchuyLab displays the Alter Results screen. We select the test to get the result entry field (the 'window'), and we notice immediately how much larger it seems:



The large window is due to the fact that we specified a large number of characters when we defined this test.

In the entry window, type in your result. In this case, we've typed "after 48 hours". (Had we seen no growth, we'd have typed "No growth seen" or words to that effect, and we'd have been done.) Now select the **Expand** button. SchuyLab displays the Update Culture Results box.

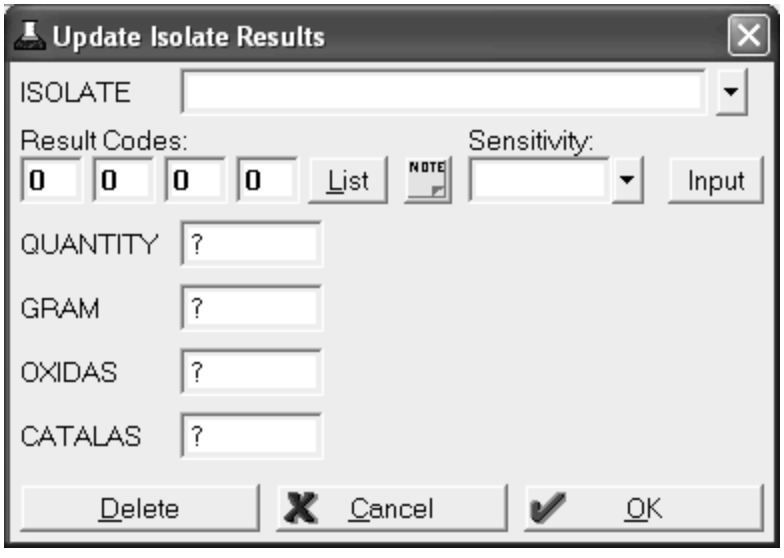


The Update Culture Results box shows the name of the culture test, and the entry already typed. It can be changed at this point, if desired, by simply typing over it.

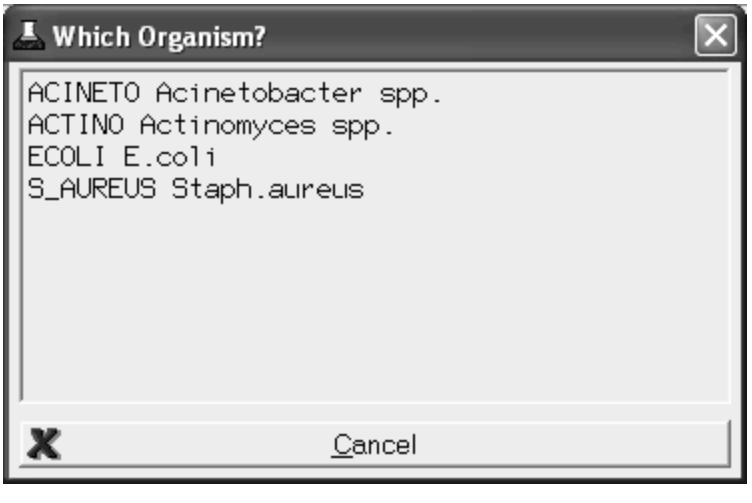
Coll Date, Time, By	**Collect date and time. This defaults to day and time that you enter these results and can be changed to reflect when you collected the specimen. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.**
Recv Date, Time, By	**Received date and time. This defaults to day and time that you enter these results and can be changed to reflect when you received the specimen. All dates can be put in as -n or +n which means that many days in the past or future, +0 or -0 will translate to today.**
Source	**You can specify the source of the swab in more detail. For a wound culture, for instance, you can type "left arm".**
Stat	**If this specimen is a STAT, clicking on this box will move this specimen to the top of any worksheet you may use and also print STAT on the barcode labels.**
Note	**As with all the other yellow note pads in SchuyLab, you can type in a free-text note.**
Result	**Enter the numbers of the Result Codes (up to four of them) to**

be appended to this test result. (A typical comment here might be the growth medium used for the culture.)

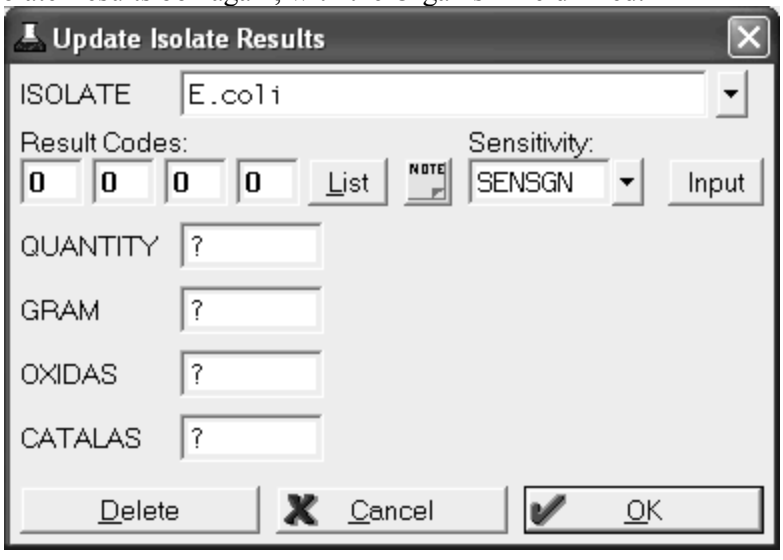
When you're ready to enter the name of the organism you've isolated, select **Isolate.** SchuyLab displays the Update Isolate Results box.



In the Isolate field, enter the code for the organism you've isolated. (Recall that you defined these codes through the Setup Microbiology icon, in **F7. Features.**) If you don't remember the correct code, click on the arrow next to the Organism field. SchuyLab displays the Which Organism? box, listing all the organisms currently defined in your system.



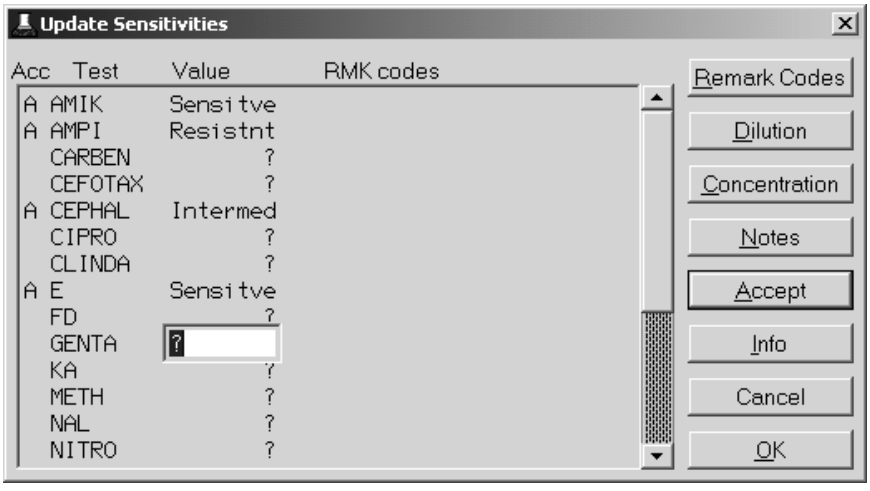
From this list, you may select the organism you've isolated in this sample. Selecting an organism from the list removes the Which Organism? box; SchuyLab displays the Update Isolate Results box again, with the Organism field filled.



Note that the Sensitivity field is already filled as well. This is the sensitivity panel that was linked to E. Coli during Setup. If you wish to override the defined panel and choose another sensitivity panel, you can use the pull-down list to display the currently defined sensitivity panels (that is, all panels with names beginning "SENS") and select from the list.

At this point, if the tests are setup, you can enter the results for the Quantity, Gram Stain, Oxidas and the Catalas. Move your curser to the first box, enter the result and then using your Tab key (on the keyboard) go to the next test and enter that result. You can also make any comments, through Result Codes or the Note pad, about THIS ISOLATE.

Once an organism and sensitivity are identified, select the **Input** button. SchuyLab displays the Update Sensitivity box.

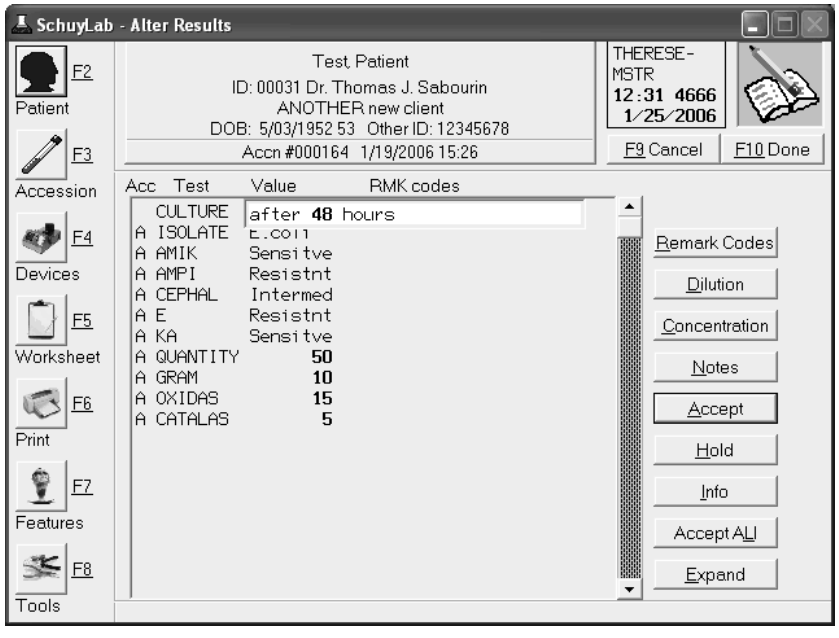


The Update Sensitivity box shows all the antibiotics on the sensitivity panel you've chosen. Enter the appropriate values for the tests. When done, select **OK.**

SchuyLab returns to the Update Isolate Results box. If you're satisfied with all that's been entered, select **OK** again.

SchuyLab returns to the Update Culture Results box, with the organism name in the Organisms Isolated field. If this is the only organism found, select **OK** yet again.

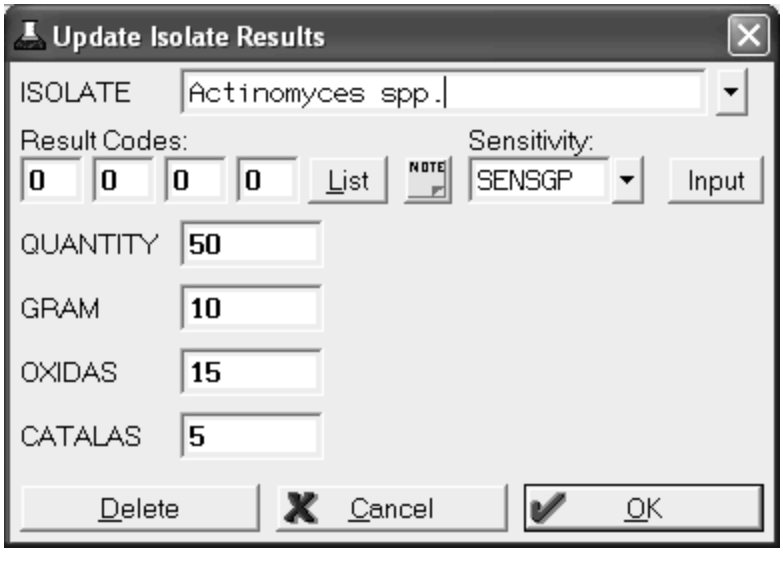
SchuyLab returns to the Alter Results screen.



The result for the culture, the organism isolated, and the antibiotics for which results were entered, are all displayed. They can be accepted into the patient's file in the normal manner. (Note that, in the above example, the culture test and organism results still have to be accepted. But that's a mere routine detail.)

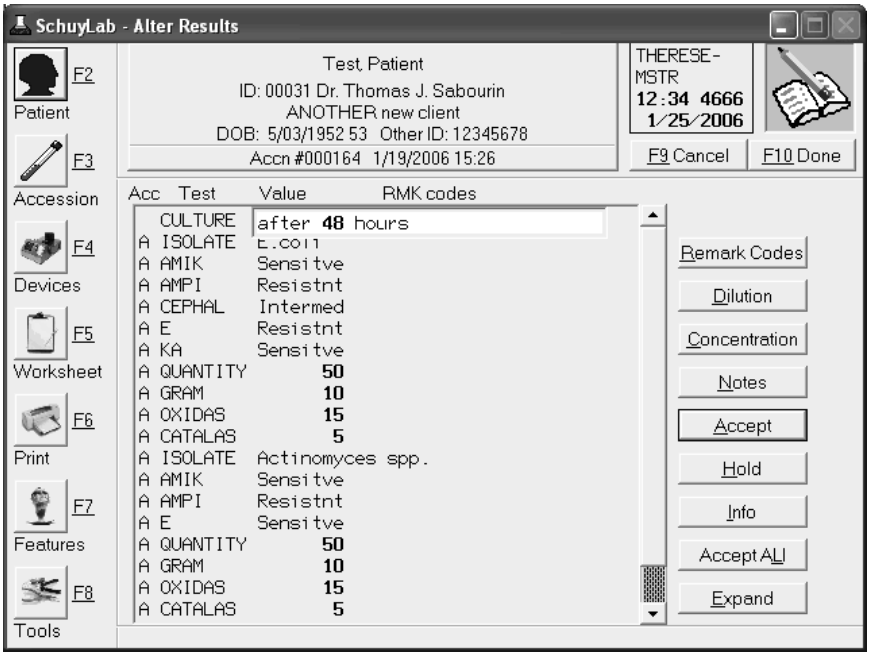
If another organism had been isolated, it can be entered in the same way as the first organism: If you're back in the Alter Results screen, simply select the culture test, as though you were updating its result, then select **Expand.** SchuyLab again displays the Update Culture Results box. (In the normal course of operations, you would probably not have left the Update Culture Results box yet; after all, you know you have another organism to report.)

Select **Isolate.** SchuyLab again displays the Update Isolate Results box. In the Organism field, enter the code for the second organism you've isolated, just as you did for the first organism.



Select the **Input** button to enter the sensitivity results. Repeat the same steps as with the first organism. You may repeat the process for as many organisms as you've identified on your sample.

When you're finally done, Accept the results for the culture and the Alter Results screen will look something like this:

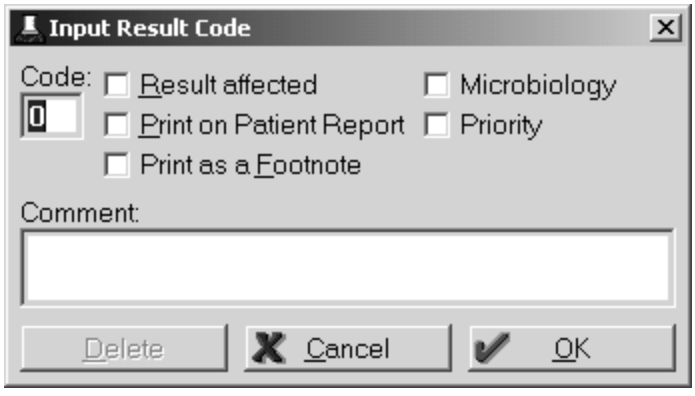


The screen will show the culture test, then each organism followed by its sensitivity results. Each result can be annotated using the **Result Codes** or **Notes** buttons, in the usual manner. When all has been satisfactorily entered, select **F10. Done.** The accepted results will be written into the patient's file.

Microbiology Annotation (Result Codes)

You'll probably want to define some pre-recorded comments for use with Microbiology: notes such as ">100,000 cfu/ml", or "typical mixed flora noted". These are defined through the Result Codes, as described quite thoroughly in Sec. 8 – Managerial Functions. One pertinent point regarding Microbiology needs to be addressed here, though.

Result Codes are defined through **F8. Tools, Remark Codes.** When they're being defined, SchuyLab displays the Input Result Code box. This box shows several check boxes, like so:



One of the check boxes is labeled "Microbiology". When this box is checked, the Remark Code is designated a Microbiology Result Code. When a test has been defined as a Microbiology test (through the Report button in the Test Definition screen, as described above), and its test results are being annotated, only the Microbiology Result Codes will show on the list of Result Codes. That makes it less likely that you'll select an inappropriate Result Code for your culture results.

Appendix: Multi-Facility

A Multi-Facility Lab is a laboratory that has other labs associated with it, running their own instruments but connected to the main lab by either a VPN or LAN network. These would NOT be independent labs, but two or more labs owned by the same person(s) and using one database, yet run separate from one another. Each lab will have its own instruments, patients and have the need for many of the data logs to be printed. But most important, each lab has its own CLIA number. When SchuyLab is configured as a Multi-Facility system, it automatically keeps track of which tests were done at which facility, and annotates the tests in compliance with CLIA regulations. How many different facilities can SchuyLab track? 64 separate facilities.

In addition to the CLIA-required testing location, what are some of the other aspects of laboratory work that SchuyLab controls with its Multi-Facility module? Instruments transmissions are specific to a facility, and these are kept separate and specific to a site. If your main lab has a Vitros and a CD3500 and your satellite lab has an Ace and a CD1700, you will only see the Vitros and CD3500 when you are in the main lab.

Since you may want a given worksheet to be specific for a facility, SchuyLab also defaults worksheets to apply to only the facility where the PC that generates them is. (Functionally, the facility where you are… but there is a way around that, to be discussed later.) On the other hand, it's become standard for laboratories with more than one location to say, "We'll each do all of our own Hematology and General Chemistry work, but the Special Chem will all be sent to the main lab, and the Microbiology all gets taken to the satellite lab."

The database access can also be controlled. While all of the results exist in a common database, the laboratory may want to restrict access at each facility to only those results that are appropriate to that facility. The set up of the individual facility can control this access.

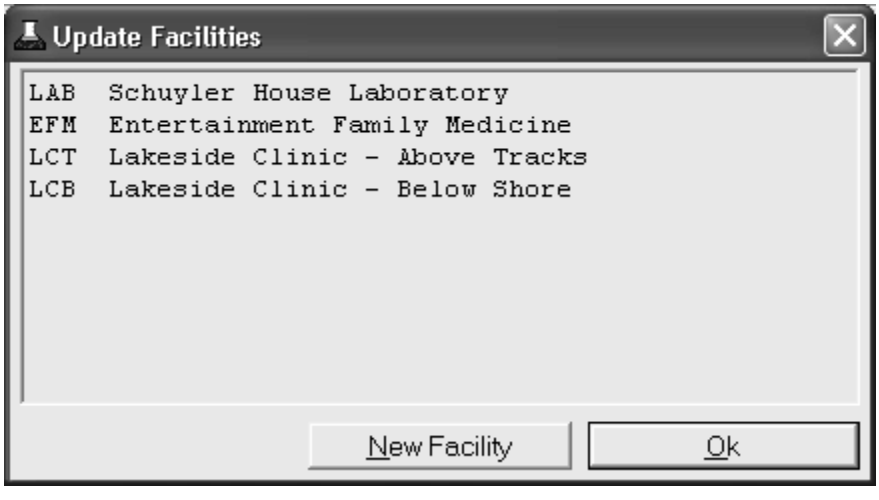
In addition, the patient results that are transmitted to a particular HIS or other system may represent a subset of the facilities that are set up on SchuyLab. The TCP/IP port configuration controls this transmission. (Please see the Other System Interface docs for a description of this.)

Set Up Facilities

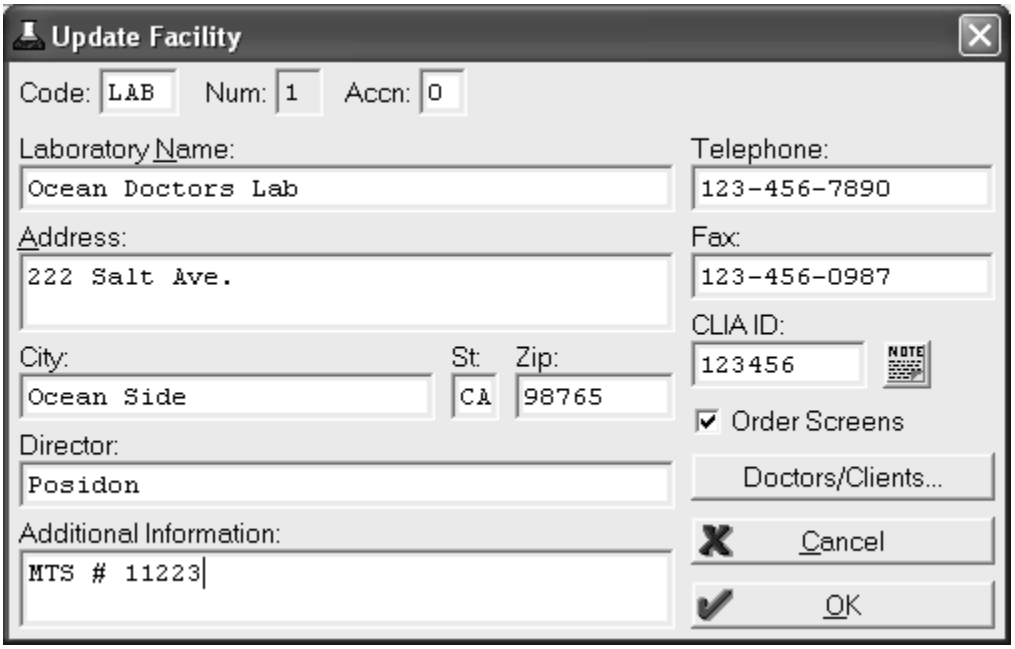
The first step in setting up your Multi-Facility module is, logically enough, to define each of the facilities that are part of your system. Additional facilities can be added later, as your lab grows.

If you are adding the Multi-Facility module to an existing laboratory, then the main laboratory must be set up as the "0" facility. All of the specimens you ran prior to this new module will be automatically defaulted to "0", i.e., coming from the main lab. If you have Multi-Facility as part of a new SchuyLab system, we nonetheless strongly recommend that the main facility be your "0" facility, though this is not technically necessary.

Select F7. Features.
Select Multiple Facility. SchuyLab displays the Update Facilities box, showing all the facilites currently defined on your system. You can select one to update its information.



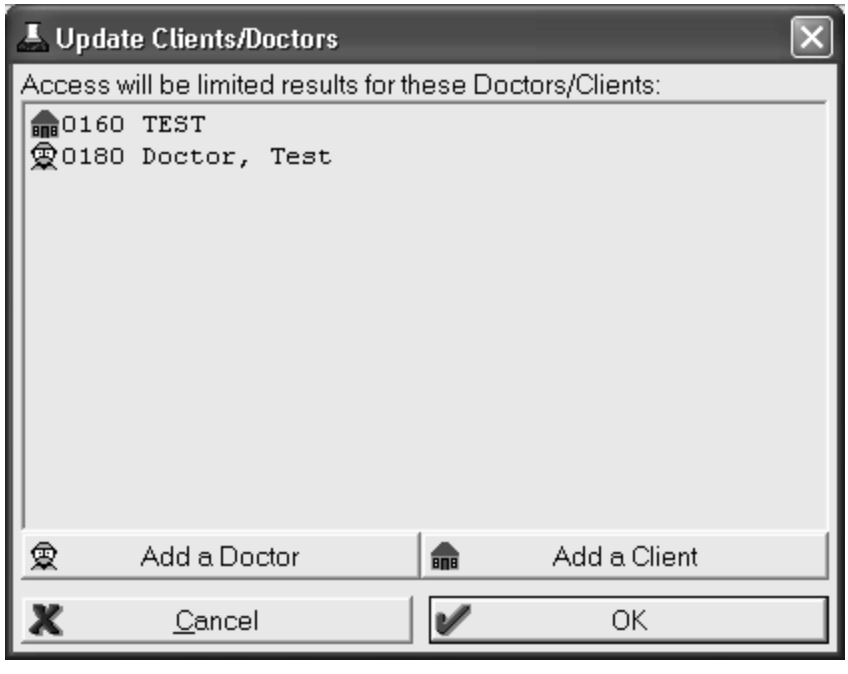
To add to the list, select New Facility. SchuyLab displays the Update Facility box.



Code	**The code is for the various labs and has a max of 4 characters.**
Num	**SchuyLab will autogenerate the number of labs (in this case, the new facility is #0). This number is permanently assigned, and cannot be changed.**
Accn	**Each facility's accessions can be designated to begin with a particular digit. In this instance, all of the Accessions from LAB will begin with a "1": 1050823027 or 1-050823027 (depending on which format you select for your accession number).**
Lab Name	**Type in the lab's name.**
Address	**Type in the lab's address.**
City, St, Zip	**Complete the lab's address**
Telephone	**Type in the lab's phone number.**
CLIA ID	**This is the CLIA ID number for this lab.**
Order Screens	**Each facility** *other than Facility "0"* **will have an Order Screens checkbox on their Update Facility box. When this box is checked, a new (blank) set of test order screens will appear at**

	each designated facility. These screens need to be set up to provide a selection of tests and panels that the facility can use for ordering.
Note Pad	**As with all the Note Pads in SchuyLab, this one has to do with the facility you are entering.**

SchuyLab's database - all of it – is accessible to each of your facilities, unless that database is further restricted by putting a specific list of Clients/ Doctors on the facility. To do this, select the Doctors/Clients button. SchuyLab displays the Update Clients/Doctors box.



The doctors and/or clients on this facility's list are the *only* ones that can access the results of that facility. In this example, I have added a doctor (Doctor, Test) and a client (TEST) under the Doctors/Clients button in the Facility module (note the differentiating icons). Now this particular facility will not be able to see the entire database of patients. This facility will see only results that have both That Client and That Doctor on a specific accession. (Other accessions on the same patient may have other clients and doctors on them and those will not be accessible to this Facility.)

As you can see, this is a powerful tool. You can 'turn off' access to the results in your database just by putting a Client in this field. Schuyler House recommends that you

not put individual doctors in the Facility Set Up without serious consideration. The Client will generally be sufficiently specific to limit access.

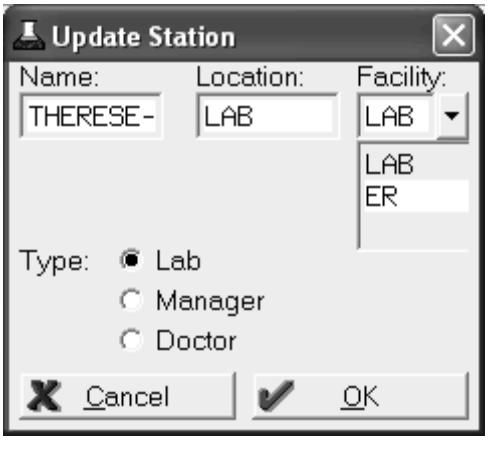
1. No entries in this Doctors/ Clients list means that the Facility has complete access to all of the patient result data in your database (within the bounds of the individual's Security code).
2. A single entry in this list throttles the access to just that listed parameter (doctor or client or both).
3. The relevant record is the Accession record. It does not matter what doctor or client is present on the patient record in Change Demographics.

Station Setup

You will need to set up the sites for each of your computers. In our example we have two sites: LAB and ER. As LAB was the first site we entered, SchuyLab will default all the stations (or computers) to that Facility name. To set up the computer(s) at the second site you will need to perform the following at each computer;

Select **F8. Tools**.
Select **Set-Up**.
Select **Station Setup**.
Select **Update Station**.

In the pull down box under Facility, choose the Facility where this station is located.



Select OK and you're done.

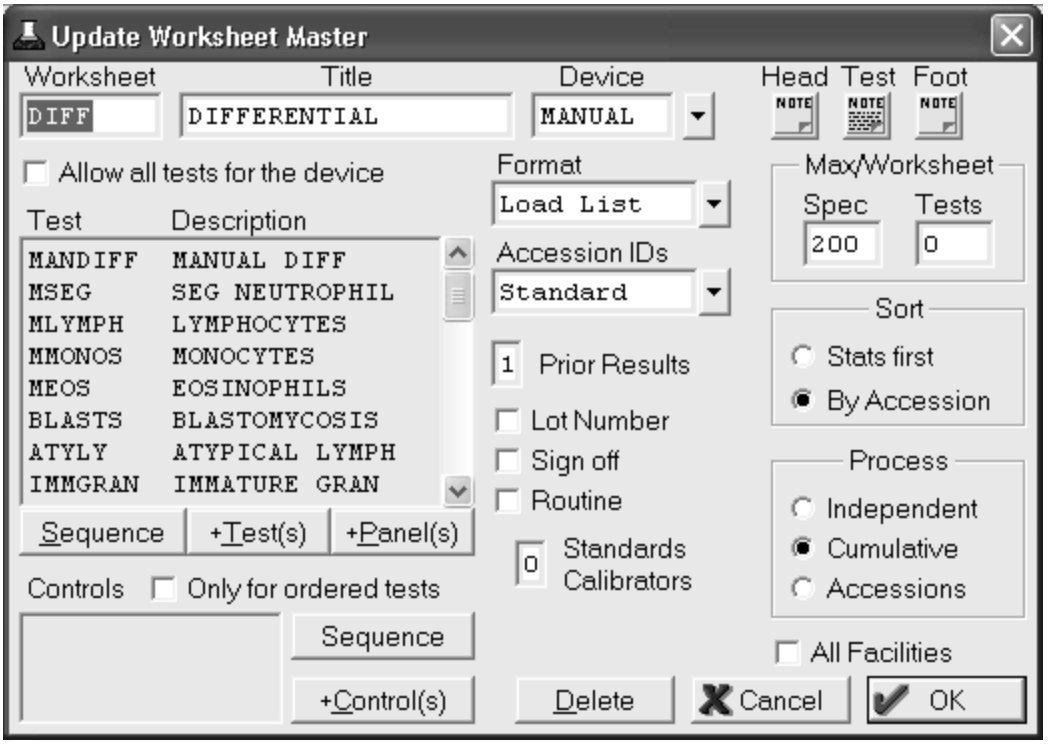
Instrument Set Up

Since instruments are attached to an individual station, by setting the Facility on the station you control which instruments are 'visible' at a particular facility. The F4.

Devices screen at each facility will therefore reflect only those instruments physically present at that location. (Each instrument on the database must still have a unique name: You cannot have a device called T360 at the LAB facility and another instrument called the T360 at the EFM facility. You'll have to call them, oh, T360-L and T360-E or something equally imaginative.)

Worksheet Set Up

Each facility can set up Master Worksheets that are specific to that facility. The Worksheet Master 'knows' which facility set it up and will only look at Accessions that 'belong' to its own facility – unless the "All Facilities" checkbox is selected.



For that contingency, we have put an "All Facilities" box on the Master Worksheet setup. This lets you pull a Special Chem worksheet that draws work from all of the Facilities in your system. If you do not mark "All Facilities", then the worksheet will just contain specimens from the site you are at.

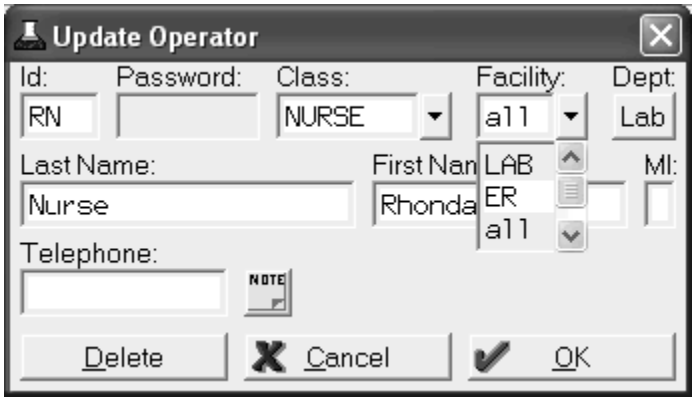
Security

In SchuyLab, everyone needs their own ID and Password. With the Multi-Facility module, in addition to the user's other access levels, you can also specify which

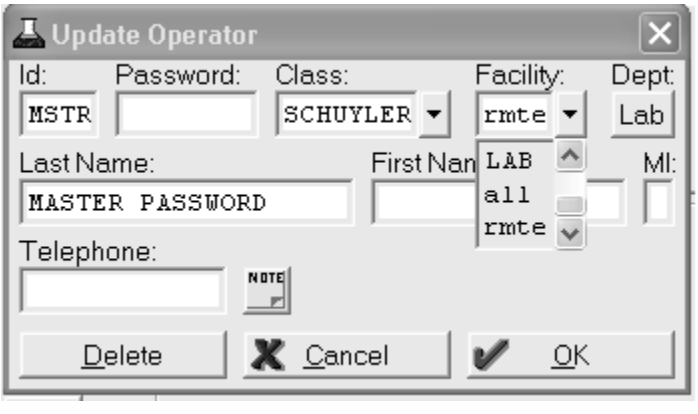
facility the user can access. Once all your sites are set up, you will need to setup the security levels for all your employees.

Select **F8. Tools.**
Select **Security Levels.**
Select **Operator.**
Select **List.**

Let us assume that you have added everyone's ID and password. If you did not assign the facility to each operator, simply click on the operator's name



At the box labeled Facility, choose whether this operator can access one of the labs (LAB or ER) or all of them. Select OK and Rhonda Nurse is now limited to working at only one of the lab sites, or, if 'all' is selected, she can work at either lab.



Two of the possible security 'permissions' are very powerful, and deserve a mention on their own. The Facility 'all' and 'rmte' appear in small case type at the bottom of the list.

By setting the user's Facility to 'all', they're given the security clearance to sign on at any of the facilities on your SchuyLab system, if the user is physically present at that site.

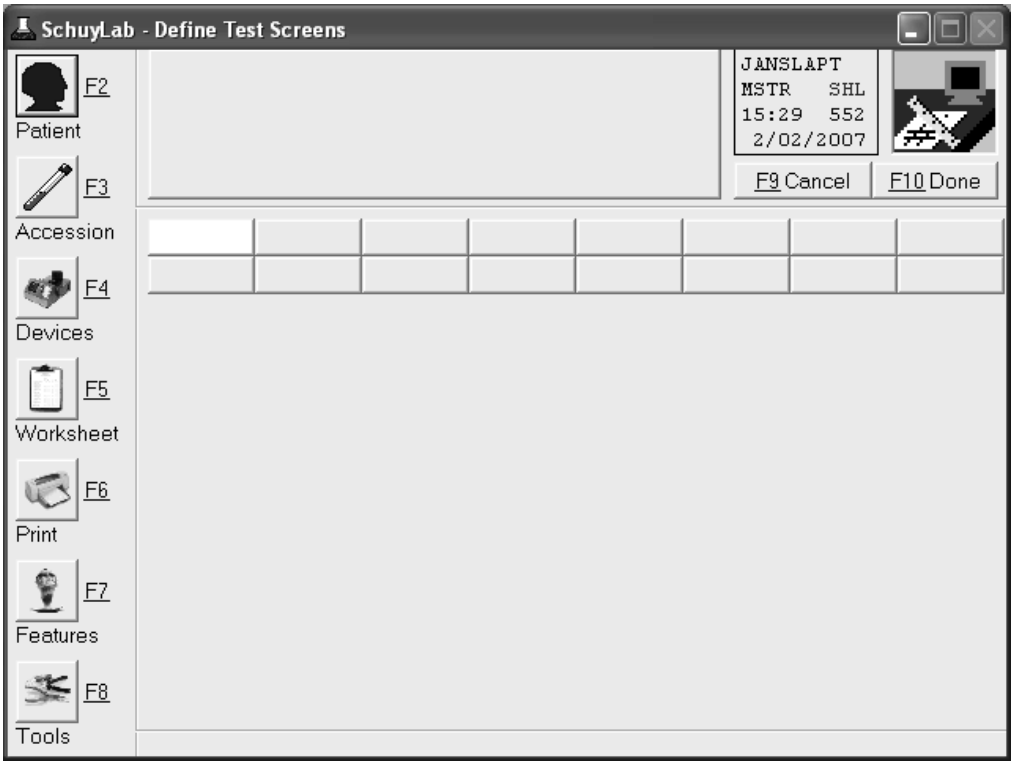
By setting the user's Facility to 'rmte', they're given the security clearance to sign on to any of the facilities on your SchuyLab system, *regardless* of whether they're physically present at that site. This is a much more powerful permission.

Let's take an example: If user "JLC" is given 'all' as a Facility on her security clearance, JLC can go to any of the labs that are a part of that system, sign on, and perform the level of work permitted by her security "Class". If "JLC" is given 'rmte' as her Facility, however, then she can sit in the main lab and 'virtually' sign on to any of the other facilities. Once JLC has virtually signed on, the station at which she works is considered part of the other facility. Any work done on that station is recorded as if the user had gotten into her car, driven to that facility, and was sitting there in that lab.

Obviously, 'rmte' is a very powerful clearance. It would, for instance, allow you to sign on to another facility, accept the results from their instruments, annotate their QC, and print their reports – all of this with SchuyLab considering you 'present' at that other facility.

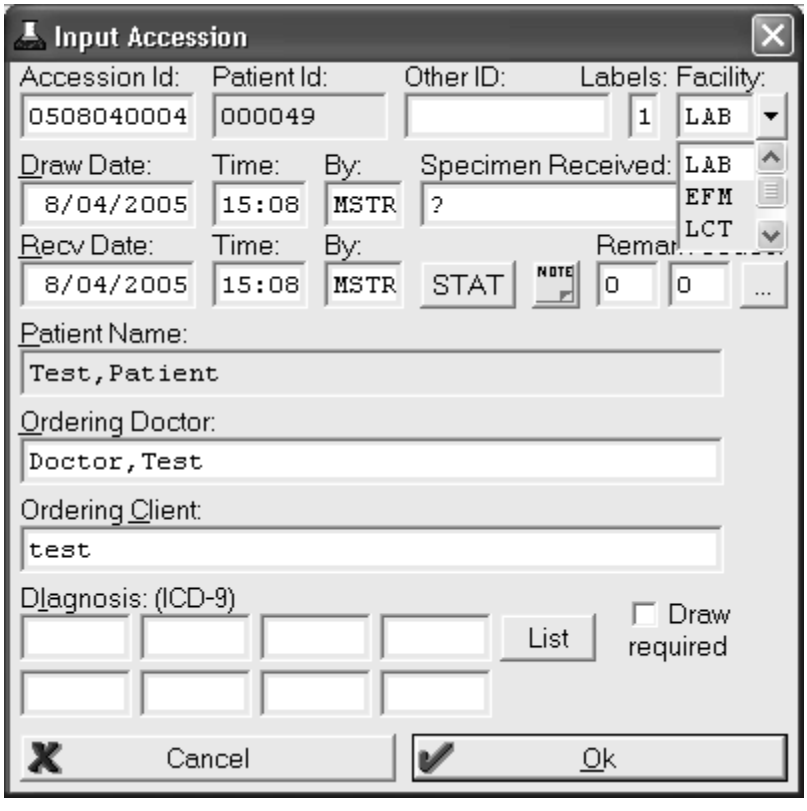
Test Order Screens

Multi-Facility sites have the ability to have a separate screen definition capability. The Update Facilities box has a check box 'Order Screens' that appears for facilities other than Facility “0”. (Obviously, Facility “0”, the home facility, already has its SchuyLab screens set up.) When you check that box, SchuyLab generates a set of blank screens that can be set up with tests for the subsidiary facility to use. Each facility that has that box checked gets its own set of screens.



Daily Processing

Once the Multi-Facility module has been loaded, and your station is properly assigned to its site, SchuyLab recognizes the existence of the facility as part of its usual processing.



Every accession that is entered into SchuyLab now has a Facility that 'owns' that particular accession. This 'ownership' tells SchuyLab where that accession is supposed to print and how to label the origin of that specimen when it is transmitted outside of SchuyLab – to an HIS, for example.

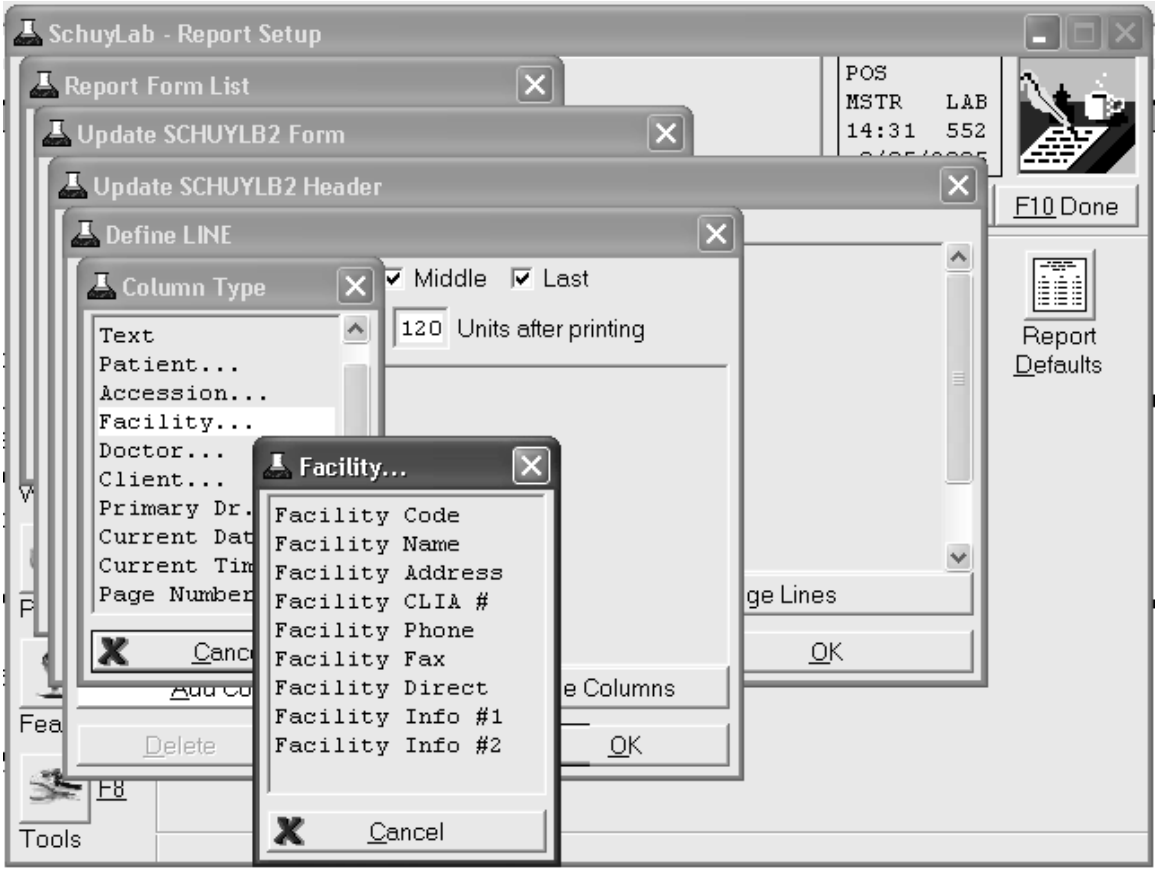
The Accession defaults to the Facility you are at, but can be overridden. Pull down the list box and select a different Facility code if you want that Accession to 'belong' to a different facility.

In addition to the Facility code appearing on the Accession, each test that is resulted carries a record of which facility actually performed that test. For instance, you could have a CBC and Diff that were ordered at Entertainment Family Medicine – where the CBC itself was actually run and accepted. The Differential, however, was done at the LAB site; when those results are accepted, SchuyLab overrides the default presumption that the tests would be performed at EFM and records that each test in the differential was done at LAB. The EFM Facility would still 'own' the Accession, but the differential tests now 'belong' to the LAB.

Printing

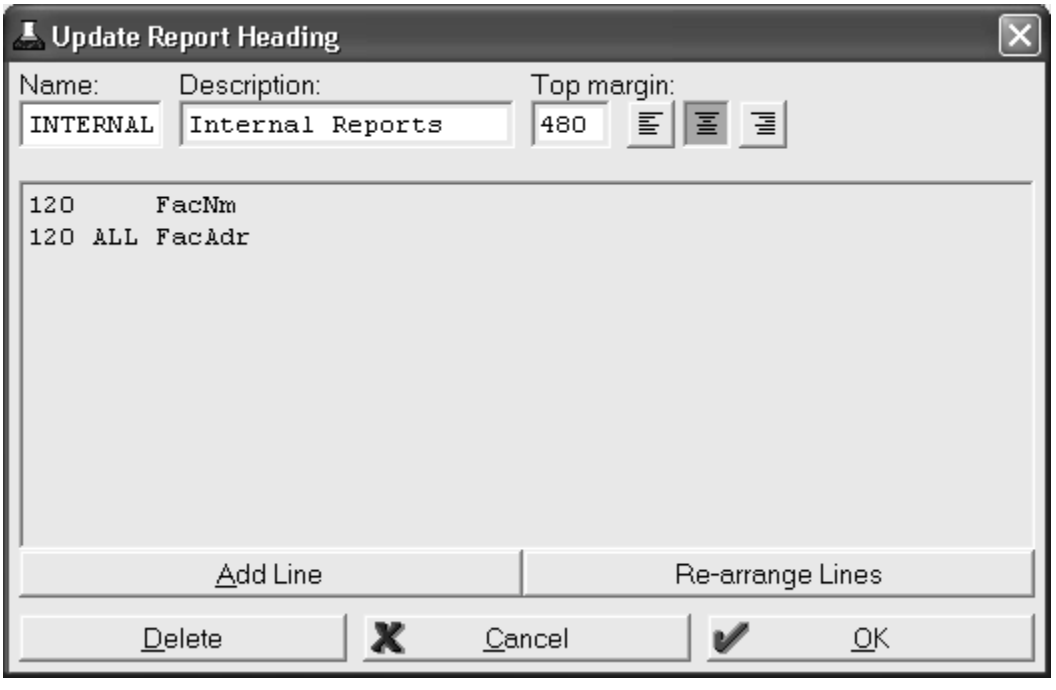
What happens when the report with the CBC and Diff print out? Because SchuyLab 'knows' which site owns the accession and where each individual test was done, it automatically knows how to print out the results. When you print that accession, wherever you are when you print it, SchuyLab prints the 'owner' of the accession as the header. Any tests on that accession that were done somewhere other than at the site that 'owns' it are footnoted (per CLIA) with the name and address of the facility that performed them.

In order to accomplish this, the Form for your Patient Report needs to have the Facility Name, Facility Address, etc., selected as fields on the Header of the Form.



Select the appropriate fields and the patient report to reflect the laboratory that each accession 'belongs' to, and annotates all tests performed elsewhere with their respective locations.

As you may recall, the prior versions of SchuyLab had text fields in Headings (F8 Tools, Setup, Report Setup, Headings) that were used for the standard SchuyLab reports and worksheets. Now those screens resemble the Forms and Reports utilities.



Select the appropriate fields and the Demographic and other internal reports will also reflect the header of the site where they were printed.

Appendix: Refer Tests

Using the Refer Tests Module

Sending out a specimen to a reference laboratory is a three-step process.

The first step is the order itself: getting the patient data, the specimen data, and the test order to the reference lab. The order might be telephoned; it might be carried on a piece of paper; it might be e-mailed, or even sent to the reference lab's website on the Internet. Currently, most reference lab customers either use the lab's Internet facility to place the order, or are sending a piece of paper (almost always, a pre-printed form) with the order written thereon.

The second step is the sample: getting the sample (vials of blood, bags of stool, whatever) to the reference lab. Whatever method is used to place the order, at some point in time a 'container full of guck' has to be physically transported from one location to another. Usually this container is accompanied by a piece of paper that either conveys the order (as discussed above), or confirms an order already placed.

The third step is the result: getting the results of the tests back from the reference lab to the customer (i.e., you). The result might be telephoned; printed and mailed; printed over a phone line (using a remote printer provided by the reference lab); faxed or e-mailed; or made available using an Internet utility.

How does SchuyLab's Refer Tests module affect these three steps?

Step one: If your lab has an electronic connection to the reference lab, SchuyLab can transmit the order directly. (Without that connection, the order will be placed by whatever means you're currently using.) The reference lab's complete test compendium is present in SchuyLab, for use in placing the order – including the normal ranges and temperature stability for each analyte.

Step two: Well, lacking quantum teleportation, Schuyler House has no way to affect the physical transport of the specimen from one location to another. The specimen must still be carried by a courier. SchuyLab prints a manifest to accompany the samples, and tracks which tests are still outstanding.

Step three: If your lab has an electronic connection to the reference lab, SchuyLab receives the result directly, as soon as it is released by the reference lab, and the result is automatically incorporated into the patient's record. Without that connection, the results must be returned by whatever way you currently use.

To emphasize the point: There are two ways by which a lab can make use of the Refer Tests module in SchuyLab:

1. with an electronic connection to transmit orders to the reference lab, and receive results electronically (Refer Tests plus the interface for each reference lab);
2. using paper manifests to communicate with the reference lab and receive results on paper (Refer Tests module, but no interfaces).

The interface to an electronic connection is not part of the Refer Tests module: the two features are separate and independent. The Refer Tests module can be used without an interface; by itself, the Refer Tests module streamlines the paper ordering of tests, and tracks the fact that these tests were done at another facility. The reference lab's results must be entered manually into the patients' records. If you don't send out a lot of tests – or send them out to many reference labs – you might decide a direct connection isn't for you.

When buying a reference lab interface, it's important to remember that an interface has two ends: SchuyLab and the reference lab. ***Both*** end need to install their interface for the connection to work. For every reference lab connected to you, therefore, you'll need an interface from Schuyler House (in addition to the Refer Tests module), and an interface from that reference lab. But the payoff is enormous: through the interface and the Refer Tests module, SchuyLab places orders and receives results with the speed of electronic transmission. This yields a dramatic drop in the turn-around-time for those results, since you no longer have to wait for a courier to deliver them. Additionally, the results are integrated with the results of the tests done in-house on that patient; SchuyLab automatically annotates where the results are done.

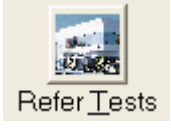
If you patronize more than one reference lab, it's quite conceivable that you might have an electronic connection to one, but not to another. Why? For a reference lab to be willing to supply their end of a connection, the volume of tests sent to that reference lab has to be high enough to make it financially worthwhile for them to go to the trouble of interfacing with you. If (to take an example) a specialty lab performed some exotic test, which you ordered very occasionally, it might not be to that lab's advantage (or to yours) to buy the interfaces necessary for an electronic connection. (Such a small workload could easily be handled manually – and you'd still have the Refer Tests module to track your orders.) But you'd still want an interface to the Mega Reference Lab that gets the bulk of your send-out business.

Whether your lab uses paper manifests or electronic transmission, the Refer Tests module can still help you manage your send-outs. If you elect to use electronic transmission, then you will need the Refer Tests module (as a basis for handling reference lab tests) and a separate interface for each of the specific reference labs. Each Reference Lab to which your lab is connected electronically requires a separate interface, a different Test Compendium, a specific manifest, and potentially a slightly different SOP.

A lab that uses just the paper manifests needs only the basic Refer Tests module. A test compendium and manifest format can still be Imported for a particular reference lab, for use with paper manifests.

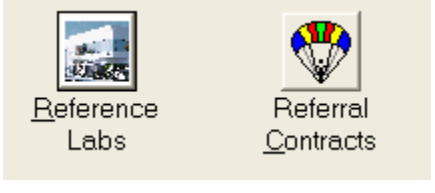
Loading the Electronic Interface

Install the Refer Tests Module, using the standard SchuyLab utility (F8.Tools -> Set Up -> Feature Install). This installs the generic Refer Tests module. Then likewise Install the specific Mega Reference Lab interface onto your SchuyLab system. This installs the capability to have a Mega Reference Lab interface, but the Mega Reference Lab icon will not yet be present in your SchuyLab. How do you get the Mega Reference Lab icon onto the screen? Go into F7 Features: There will be a Refer Tests icon present. Select it.

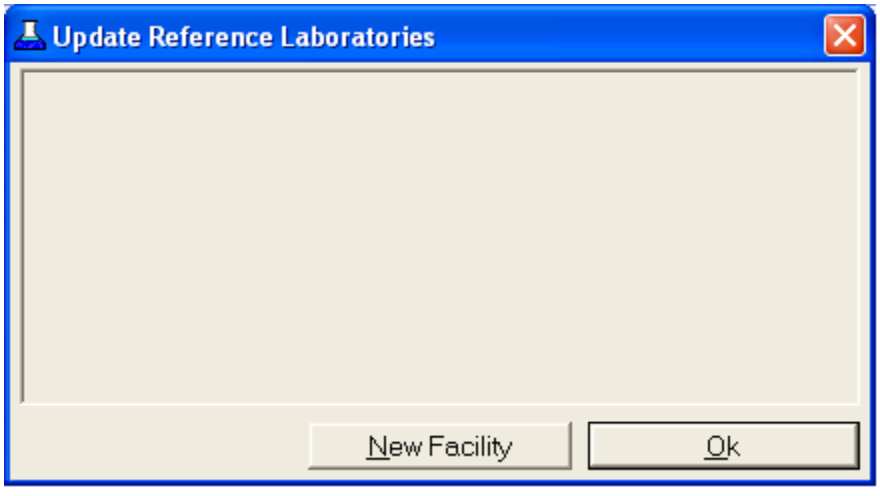


Now you will see a Setup Labs icon. Select it.

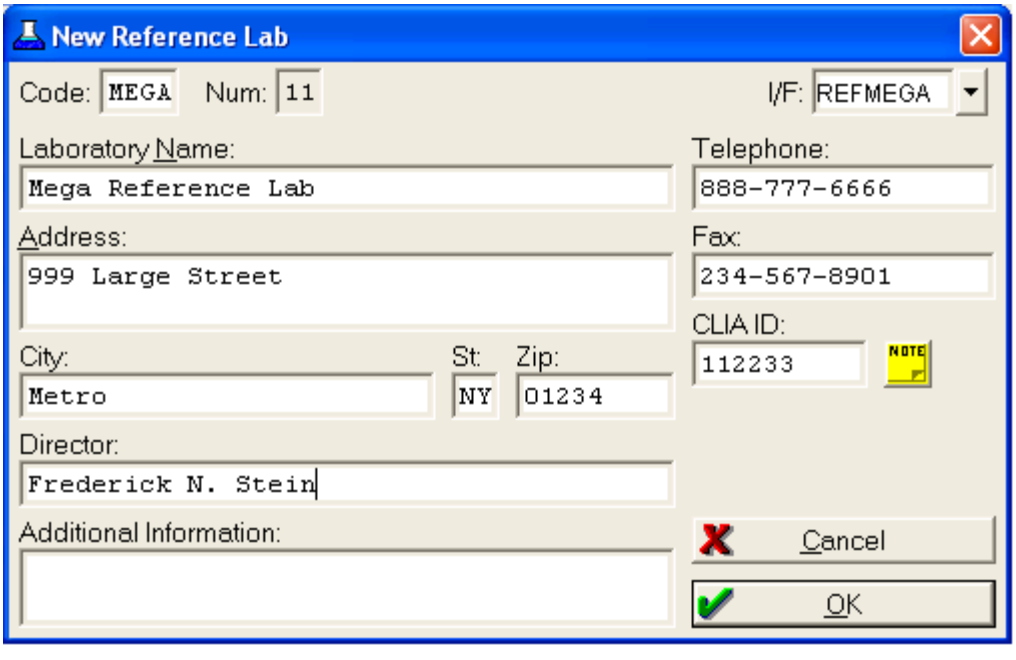
SchuyLab displays a screen with two icons



Select the Reference Labs icon.

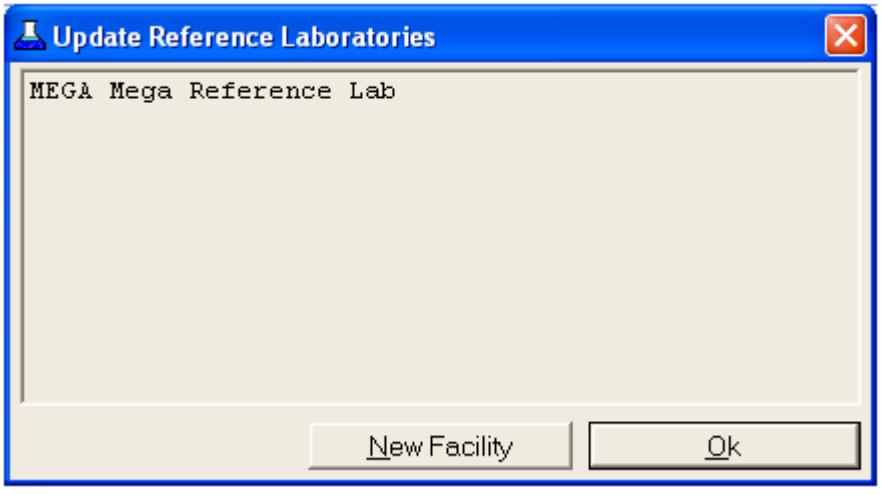


SchuyLab displays the Update Reference Labs box. Select New Facility.



SchuyLab displays the New Reference Lab box. The "I/F" pulldown box in the upper right corner will contain an entry for each of the electronic interfaces that have been installed. In this instance, the list contains one entry: REFMEGA. Select that

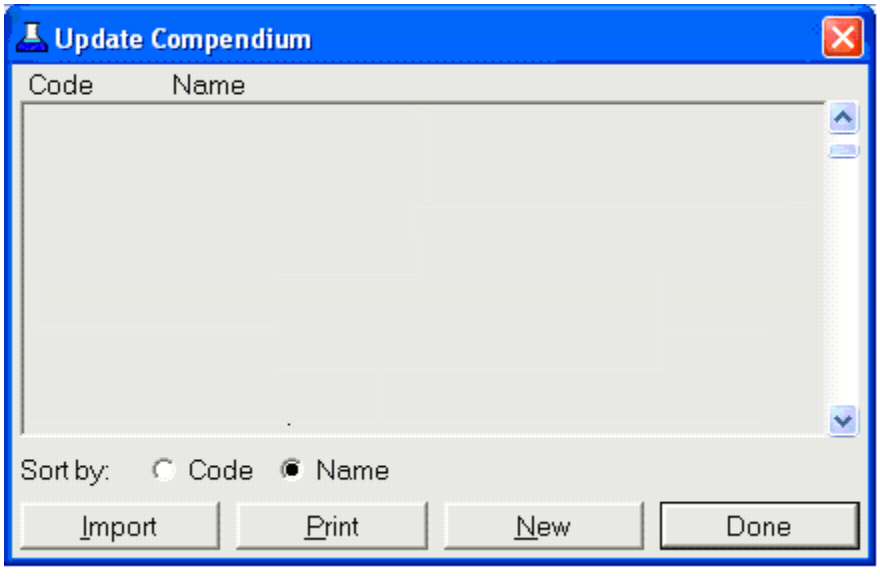
entry and type in the rest of the information on that reference lab. This data will be used to provide the footnotes that annotate results performed at that lab.



Select OK. The prior listbox now contains an entry for this reference lab.
Now log out of SchuyLab, log back in, go to F7. Features -> Refer Tests, and the Mega Reference Lab icon appears. Select the Mega Reference Lab icon.

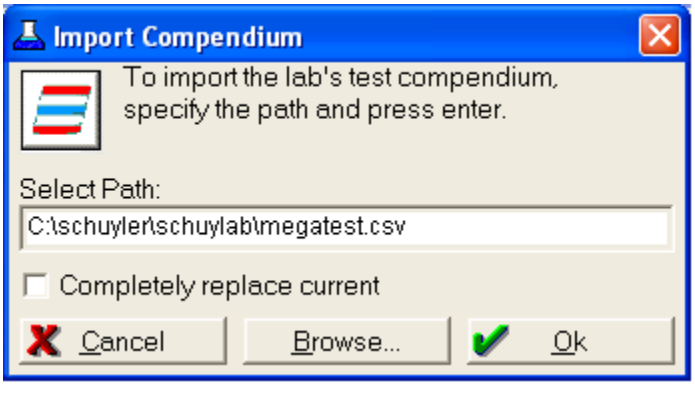
Select Update Compendium.

SchuyLab displays the Update Compendium box.



For SchuyLab to have the Mega Reference Lab Test Compendium, one or more files must be Imported. If there is more than one file, *they must be loaded in a specific order*: The Mega Reference Lab test list, "megatest.csv", is the first file. (It does not come originally in a csv format, but must be converted to a csv format before it is loaded into SchuyLab. Schuyler House will provide the original Test Compendium in csv format – If you need help with updates, please contact our Technical Support department.)

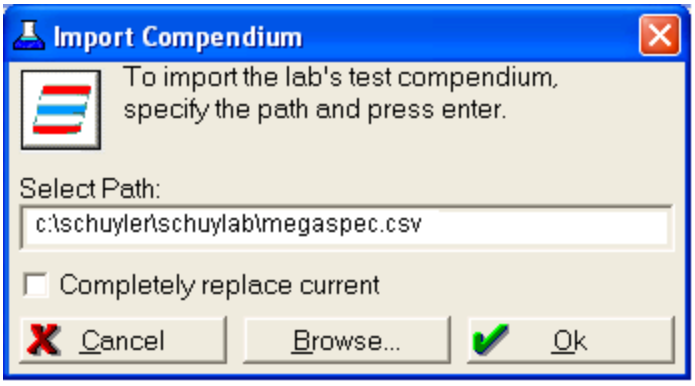
Select Import and type in the path to the csv file.



Select OK, and you'll have loaded 3000 Mega Reference Labs tests. Their units and their normal ranges are blank. **The actual units, normal ranges and flags are transmitted with each result, and are accepted as part of that result.** If the normal range, for instance, changed since the receipt of the test compendium, it does

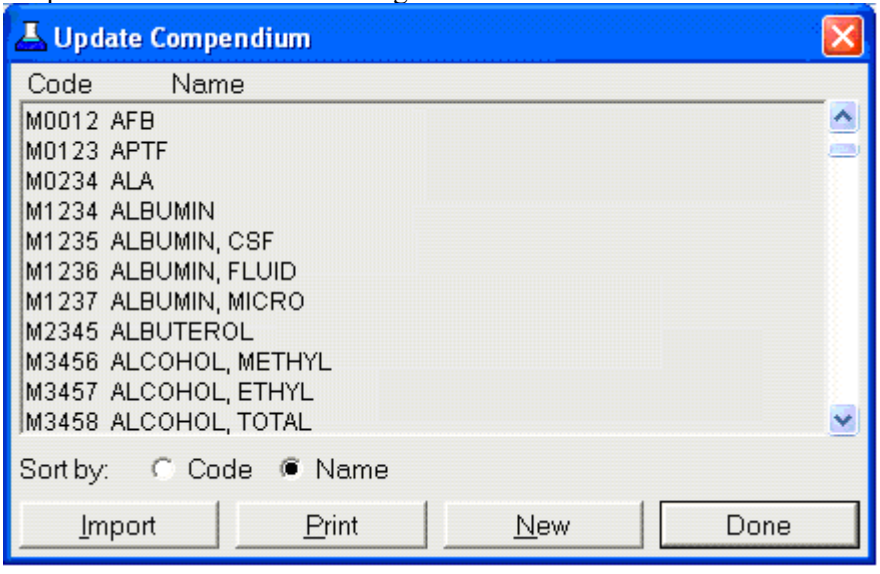
not matter: The normal range that is dynamically sent in the HL7 file in association with a particular result will be the one that is stored with the patient's result.

Let's say you need to perform a second Import for the additional file, "megaspec.csv":

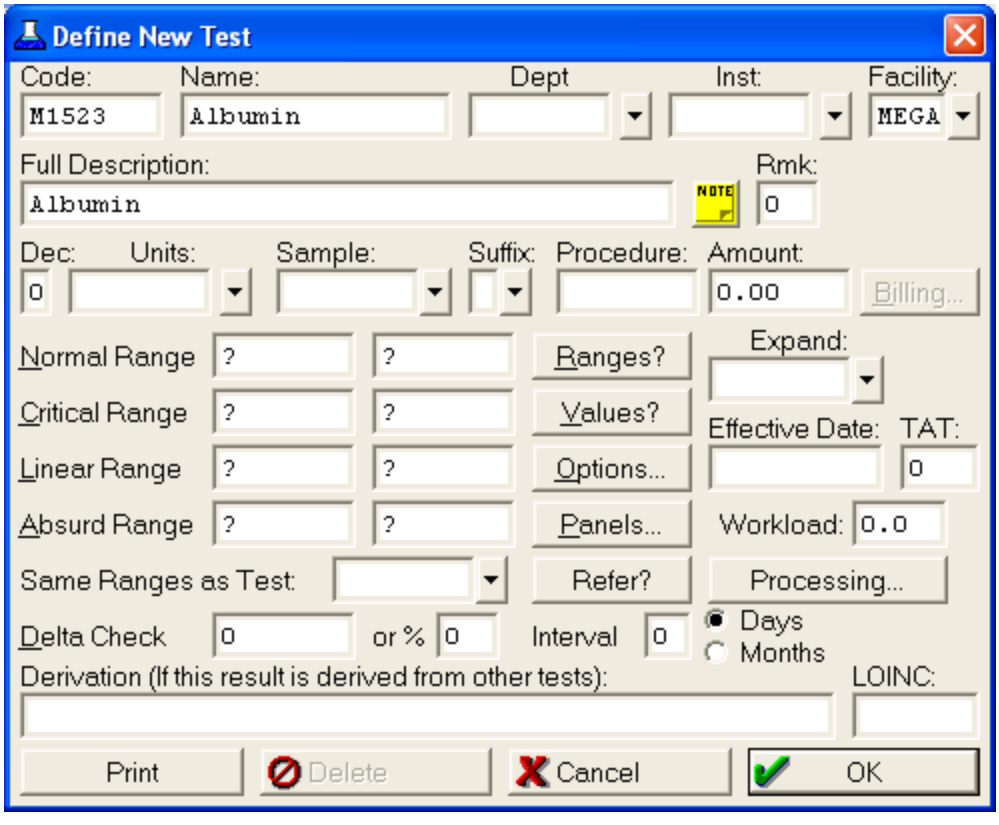


There! Now the temperatures and stability information have been added to each of the tests in the Mega Reference Labs Test Compendium.

The Compendium now looks something like this:



Each of these tests has a setup screen associated with it that duplicates the format of our standard Test Definition screen.


Define New Test
Code:
M1523
Name:
Albumin
Dept
Inst:
Facility:
MEGA
Full Description:
Albumin
NOTE
Rmk:
0
Dec:
0
Units:
Sample:
Suffix:
Procedure:
Amount:
0.00
Billing...
Normal Range
?
?
Ranges?
Critical Range
?
?
Values?
Linear Range
?
?
Options...
Absurd Range
?
?
Panels...
Same Ranges as Test:
Refer?
Expand:
Effective Date:
TAT:
0
Workload:
0.0
Processing...
Delta Check
0
or %
0
Interval
0
Days
Months
Derivation (If this result is derived from other tests):
LOINC:
Print
Delete
Cancel
OK

Ordering Send Out Tests via Refer Tests Module

There are three ways to order tests using SchuyLab's Refer Tests module. In each case, SchuyLab knows that the test ordered belongs to a particular reference lab facility, makes it available for printing on that facility's manifest, and makes it qualify for electronic transmission. How these three ways differ will depend on the knowledge of the ordering tech, and how SchuyLab handles the results of that test.

1. Ad hoc reference lab test ordering
2. Explicitly linked tests
3. Conditionally linked tests, dependent on contract with payer

All three ways of ordering are potentially available to the users of the Refer Tests module, but only the first item – ad hoc ordering – requires no (or almost no) setup.

Ad hoc Ordering

The ad hoc test ordering mechanism is intended to be used with tests that are rarely ordered. Let's face it, you've just loaded a test compendium containing 3000 tests into your Refer Tests module. There are a handful of these tests that you use all of the time, some you use once in a while, and some you order once a year. The ad hoc method of ordering is designed for the 'once a year' tests.

To order tests "ad hoc" from a reference lab, all you need to do is to set up the facility as a reference lab in the Refer Tests module: You do not need to have a test compendium loaded. Ad hoc ordering works with either paper or electronic methods of transmitting tests to the actual performing lab.

The downside of ad hoc ordering is that it is easy to make a mistake. (SchuyLab will trust you to know what you are doing and won't argue with anything you type in.) You'll need to know in advance the reference lab's test code for whatever you're ordering. Also, you'll have little control over the placement of the tests on the printed Patient Report. (The tests and their results will be grouped in a group heading under the name of the Facility at the end of the Patient Report.)

To use ad hoc ordering, go into the Freeform style Order Tests screen in Patient Processing. There you will type the test code and the Facility code into the Text box, like this: "M1234@MEGA." This orders test "M1234" at ("@") the Facility "MEGA".

How will a test ordered via ad hoc ordering print on the Patient Report? The HL7 format, which is used for most medical data communications, has provisions for including the test description, normal range, flags and notes on each result. When a test is ordered ad hoc, its result is printed in a Group in Report Order with the name of the reference lab Facility. This Group does not have to be created by the SchuyLab user – the existence of a test in the patient's results that is not in the list of tests in Report Order will dynamically create such a Group.

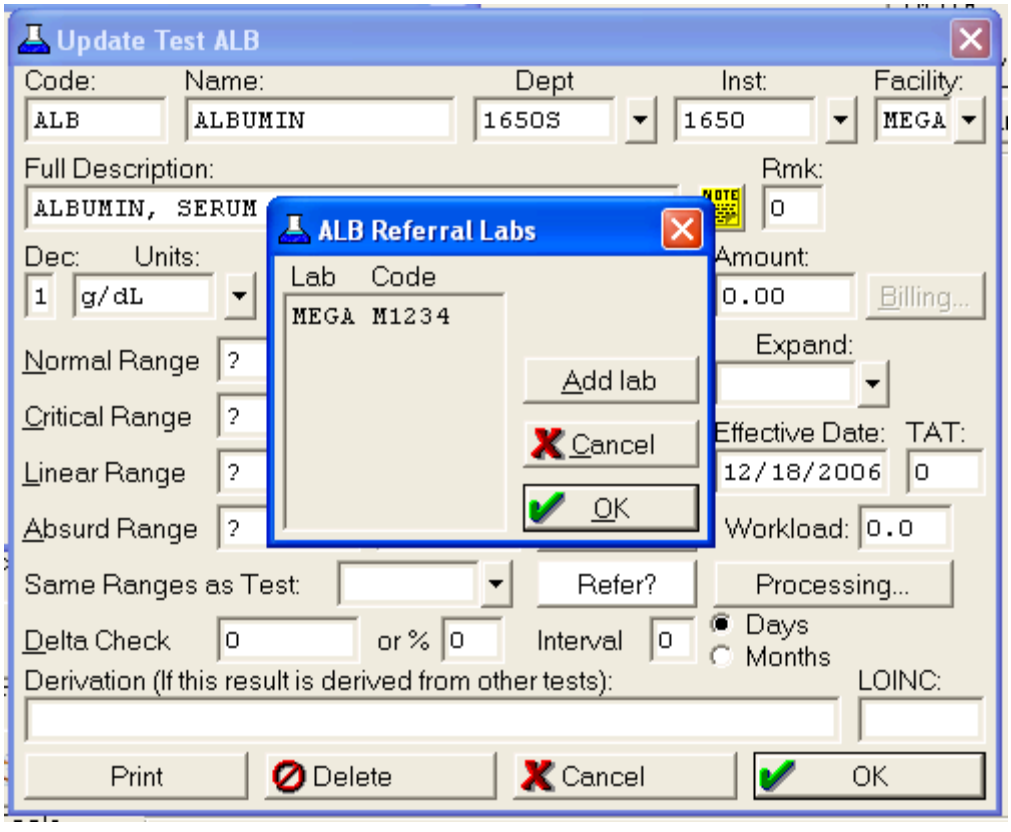
Explicitly linked tests

The previous section dealt with ad hoc ordering, which is good for tests that are done once a year. How do you order a reference lab test that you use 50 times a day? For those, you can afford to spend the time setting up a frequently used test, and placing it in a specific spot on your Patient Report. (SchuyLab will automatically annotate that this test was done at its performing Reference Facility.)

If you want to set up an ironclad rule that THIS test is always done at THAT lab, then the second method of ordering reference lab tests – Explicitly linked tests – is what you want.

Link a test in the SchuyLab database to a single test that is always done at a particular reference lab. You set the Link for *only* the corresponding test code at that particular lab and you set the Facility box for that facility. This SchuyLab test is then *explicitly* linked to a particular test at a single reference lab.

Let's say we have a test "Albumin" that we always want to be run at Mega Reference Lab. We go into the Albumin tests in Test Definition (F8.Tools -> Set Up -> Test & Panel Definition -> Test Definition) and select the Refer button. Type in what the Mega Reference Lab order code is for that test, and set the Facility to Mega.



This is now an explicitly linked test. Irrespective of what a patient's insurance is, regardless of whatever contracts have been established, no matter what – This Albumin is ALWAYS run at Mega Reference Lab.

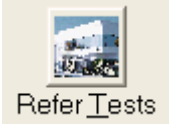
Conditionally linked tests

The most common scenario that a laboratory faces is that a test is potentially ordered at different facilities depending on the paying arrangements that have been made. For example, you may be a rural hospital that typically runs all of you A1C's in house – except that you have a contract with Mega Reference Lab to act as a drawing station for them in your area. When a doctor who uses Mega Reference Lab to perform his tests sends a patient to you to be drawn, that A1C has to be ordered at Mega Reference Lab *even though you perform A1C's in house*.

It gets worse. Your contract with Mega Reference Labs says that there are exceptions to this rule if the test drawn is marked STAT. If the A1C is marked STAT, then you can do it yourself, even though it is a Mega Reference Lab patient.

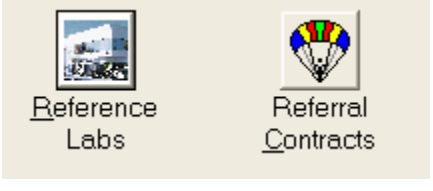
How do you keep track of this? SchuyLab does it for you: You conditionally link a test to one or more reference labs, and set up contracts that control when it gets ordered where.

Select the Refer Tests icon.



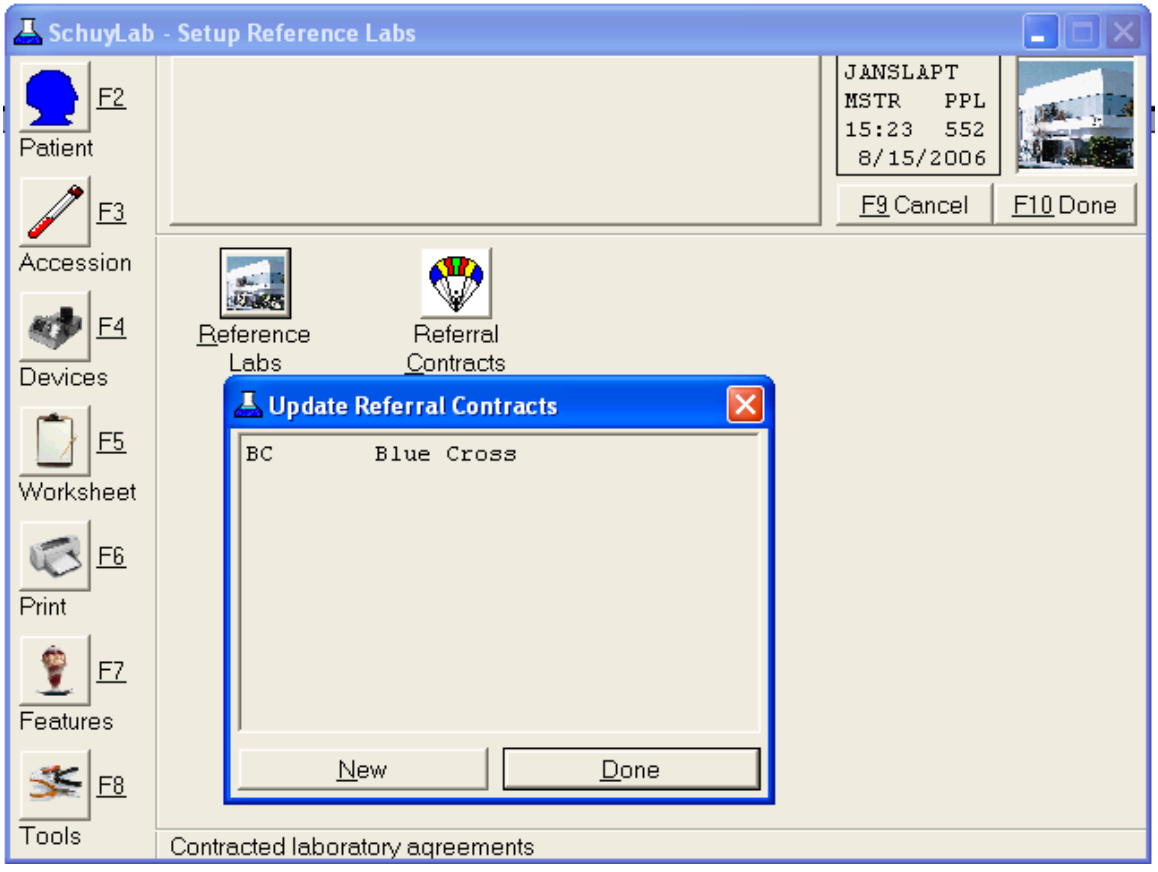
Now you will see a Setup Labs icon. Select it.

SchuyLab displays a screen with two icons

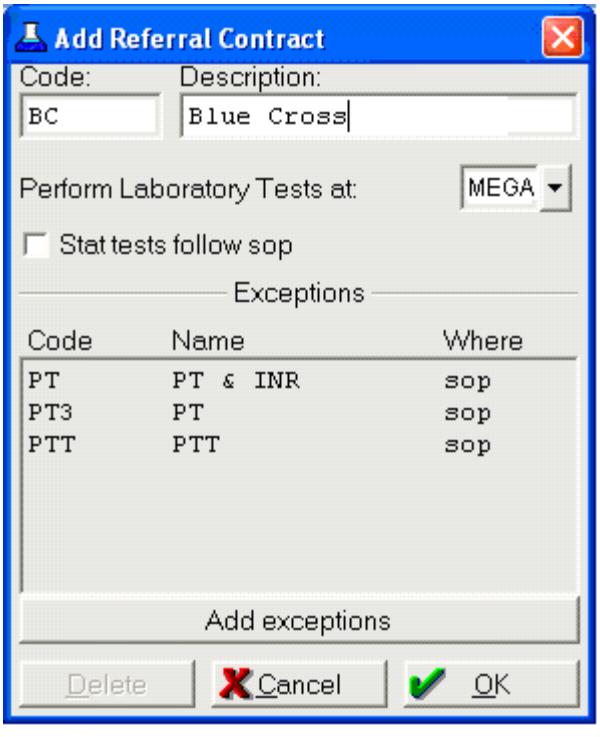


Select Referral Contracts.

Now we will set up a Contract with Blue Cross that has all of their tests performed at Mega Reference Lab, except for the Coag work:

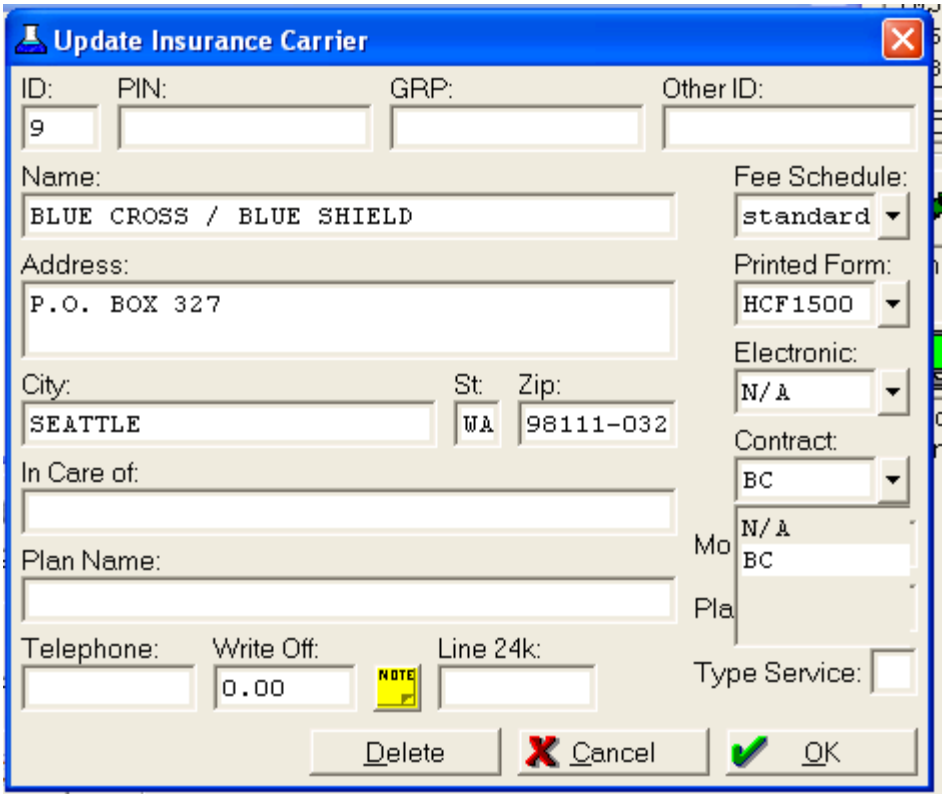


We have a Blue Cross contract in existance. This single contrace lets me have one 'BC contract' for all 75 of the Blue Cross offices that I have in my insurance company list – I do not want to set up (and maintain) contracts for each office separately.

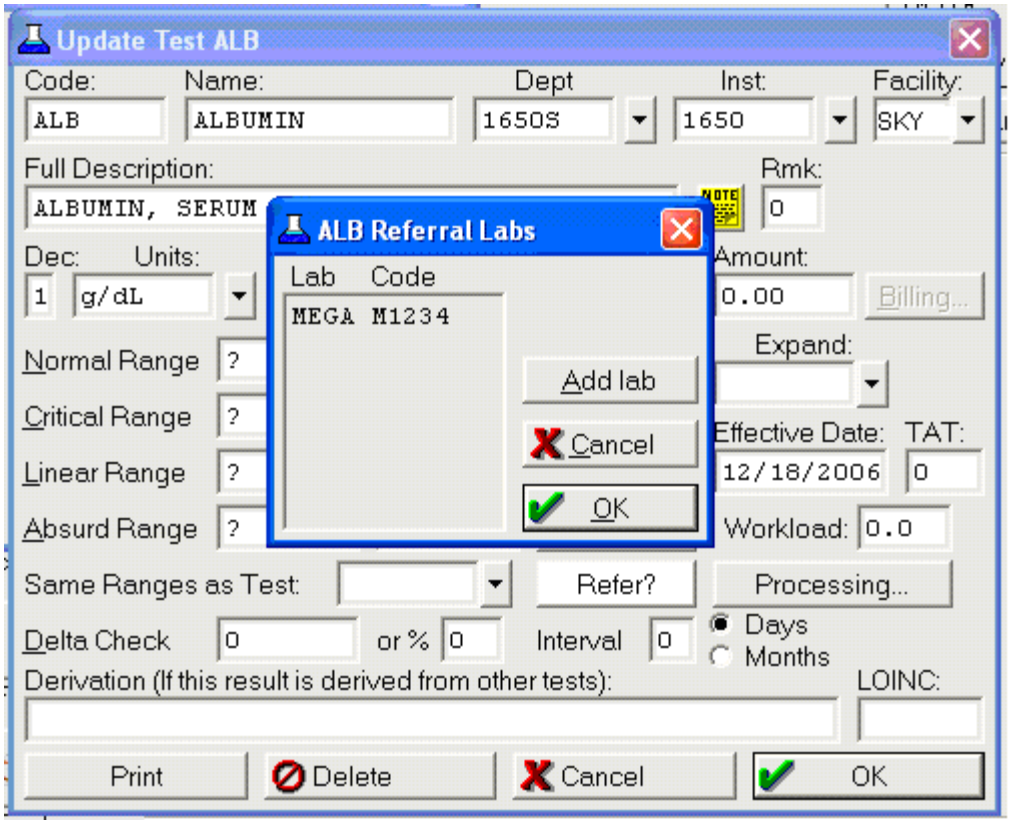


Select the correct reference lab "MEGA" in the pull-down box. This says that Blue Cross has all of its work done at Mega Reference Lab. There is an exception, though: Your contract with Blue Cross says that you may perform coags in-house on Blue Cross patients. So, in the Exceptions box, I have selected my coag tests and said that they are performed at my 'SOP" facility – which in this case is Sky Labs. Anytime there is a patient with Blue Cross insurance, the tests automatically ordered at Mega Reference Lab – unless they are coagulation tests, in which case they are done in-house.

How do you determine your "SOP" facility? This is set up in Test Definition, when you place a default Facility on the test. (In an 'Explicitly ordered test' the default Facility will always match the *only* link set up in Refer. If there is more than one Refer link, or the default Facility is different than the (single) Refer link, then the test is Conditionally linked. –see below)



Now we are back to the 75 aforementioned Blue Cross offices with which you do business. You only need to set up one Contract for Blue Cross, but you do need to go your insurance carriers and select "BC" for each one that uses that contract.



But how does SchuyLab know the Mega Reference Lab order code for this test? We tell the Test Definition (F8.Tools -> Set Up -> Test & Panel Definition -> Test Definition) what the Mega Reference Lab order code is. Please note that, unlike the 'Explicitly ordered tests', the Facility on the Albumin does not match the link set up in 'Refer?'. When there is more than one link in the Refer list, or when the Facility in the Refer list (Mega) does not match the Facility set on the test itself (SKY) then the test is *conditionally* linked. Now the ordering will take place by itself. When SKY's accessioners order an Albumin and a PT on a Blue Cross patient, the Albumin will automatically be ordered as a M1234 at Mega Reference Labs and the PT will be done at SKY (the default location, as it were).

Summary

So, there are 3 ways to order a reference lab test in SchuyLab:

1. Ad hoc ordering – you go into the Freeform style order screen in Patient Processing and directly type the test code and the Reference Lab into the Text box, i.e. M1234@MEGA. This test is now ordered at MEGA, whether or not it is in their compendium.
2. Explicitly Link a test in the SchuyLab database to a single test that is always done at a particular reference lab. You set the Link for *only* the

corresponding test code at that particular lab and you set the Facility box for that facility.

3. Conditionally Link a test to one or more reference labs, and set up contracts that control when it gets ordered where.

Appendix: Remote Printing

Your system is set up with its required printers, reports and invoices are printing nicely to the correct locations, and all is right with the world. Now, you need to print something from your computer station to the lab next door, the boss's office across the street, or a client across town. That's where Remote Printing comes in.

Hardware requirements

1. Make sure the receiving printer is able to receive the transmission. Make sure the power is on, the printer is online, and that it has paper.
2. Make sure the receiving printer is plugged in to a dedicated phone line, one reserved for that printer alone. This enables you to send the receiving printer data over a modem.
3. The SchuyLab station with the modem in it must have a line (cord) between the modem and a dedicated phone line.
4. The SchuyLab station with the modem in it must be on and logged in to SchuyLab.

Setting up Remote Printing

Setting up Remote Printing in your SchuyLab system consists of three steps:

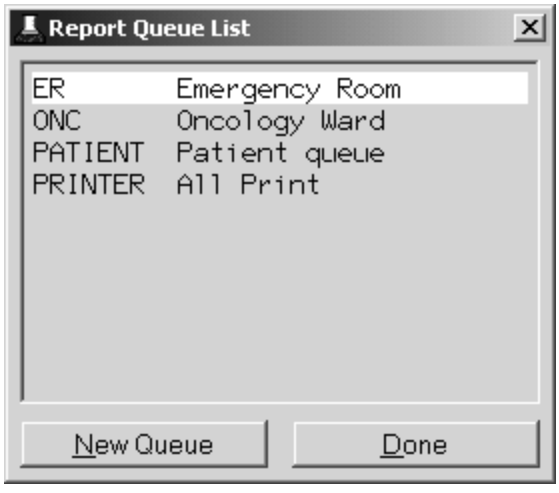
A) Set up the printer queue, the area in the computer where documents go to be printed, for the remote printer. Make sure there's a separate queue for each remote printer (REMOTE1, REMOTE2, or the name of the client), as there is for each printer in the lab (test results going to the LAB queue, for example, invoices going to the BILLING queue, etc.).

B) Attach the remote printer queue to the client's record. Once that's done, all patients belonging to that client will automatically print on that remote printer queue.

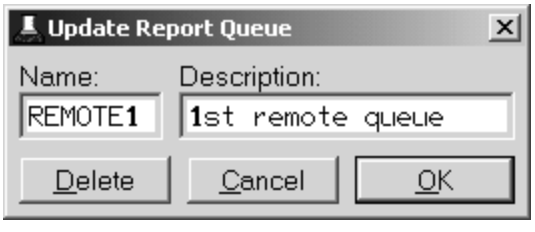
C) Set up the Remote Printer feature to connect the remote printer queue for a client to their telephone number.

A) To set up a new queue for your remote printer:

1. Select **F8. Tools.**
2. Select **Set-Up.**
3. Select **Report Setup.**
4. Select **Report Queues.**
   SchuyLab displays the current list of the Queues available.



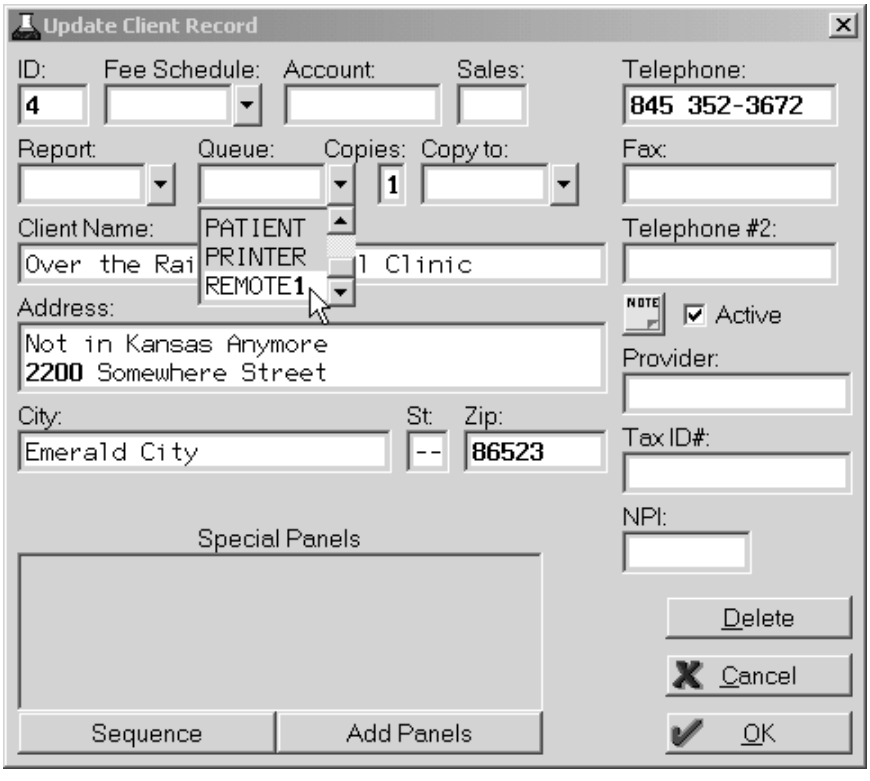
5. Select **New Queue.** SchuyLab displays the Input Report Queue box.



6. Fill in the Name and Description entry fields. We've used "REMOTE1" and "1st remote queue" for this example. Select **OK.**
7. Select **Done.**

B) To attach the new queue to the client record:

1. Select **F8. Tools.**
2. Select **Doctor Records.**
3. Select **Update Clients.**
4. Click the mouse on the name or number of the client with the remote printer. Select **OK.** SchuyLab displays the Update Client Record box.

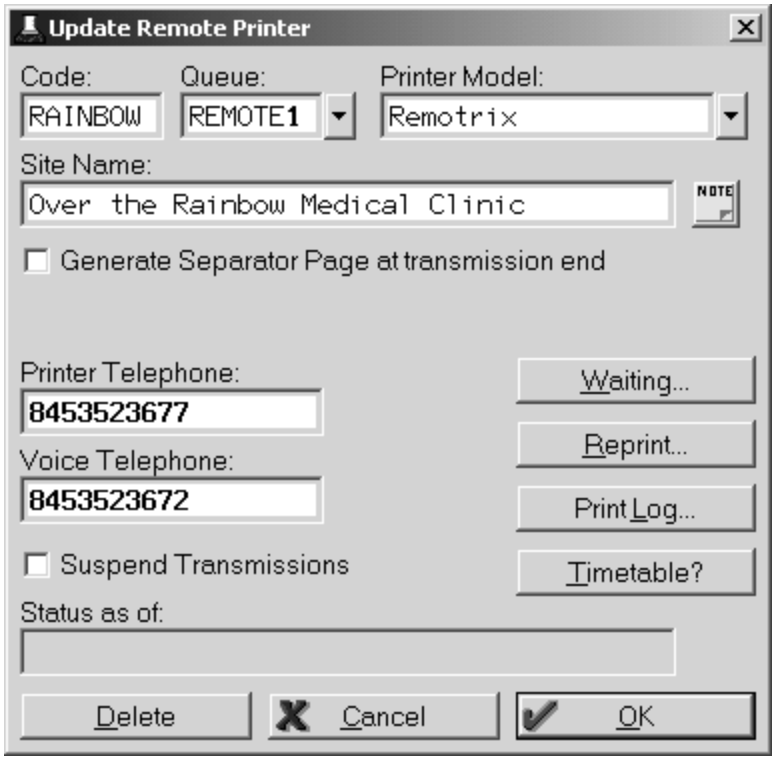


5. In the Queue pull-down list box, select the new queue you defined for this remote printer site.
6. Select **OK.**

C) To set up the remote printer feature on SchuyLab:

1. Select **F7. Features**.
2. Select **Remote Print**.

SchuyLab displays the Update Remote Printers box, listing all the remote printer connections currently defined in your system. Select New. SchuyLab displays the Define Remote Printer box.

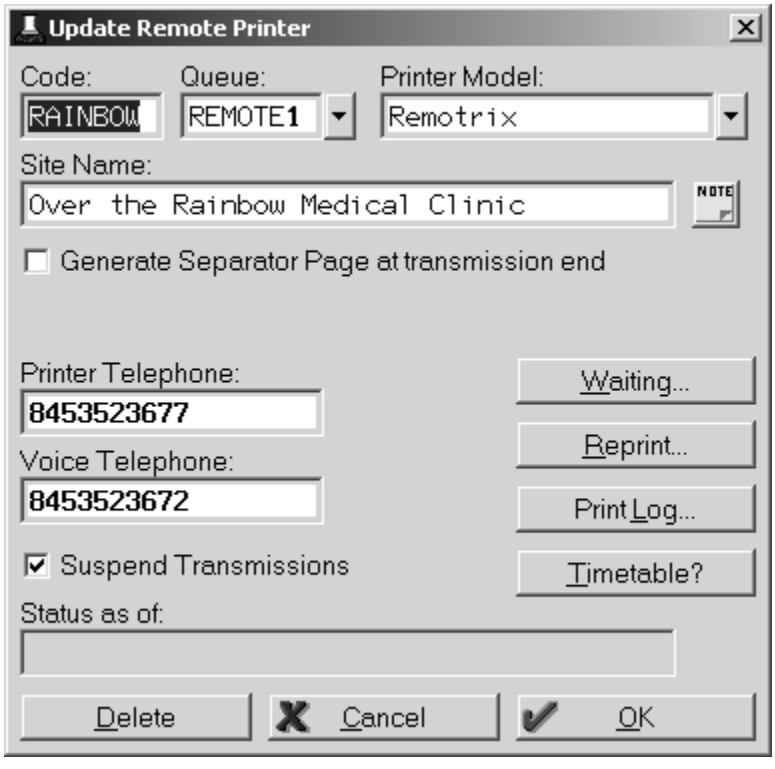


3. Enter an 8 character name for the client's site in the Code field.
4. Select the correct remote printer queue (the one you just set up) from the Queue pull-down list.
5. Select the model of remote printer from the Printer Model pull-down list. The Printer Model will generally be Remotrix, but there are others available.
6. In the Printer Telephone field, enter the telephone number for the remote printer's line. Do ***not*** use any dashes or spaces. Include all prefixes and area codes, and if the number is long distance for you, also include the "1" you need (basically, enter the number as you would dial it).
7. The Site Name and Voice Telephone fields are optional. They allow you to enter a more complete description of the client's site, so it will be easily available for future reference.
8. If you want each transmission to this printer to end with a separator page (to distinguish it from tomorrow's transmission, for instance), select the "Generate Separator Page" button. The final separator page acts as a mini-log and contains the date, time, and number of total reports printed at the bottom of the page.
9. Select **OK.**
10. Select **Done.**

Once all this is accomplished, it should be a simple matter to access a patient record (through **F2. Patient** or **F3. Specimen**) or other document you wish to remote print.

When a prompt window pops up with the Printer Queue choice, just select the new remote printer queue. In the case of Batch Printing, SchuyLab will automatically pick out the reports in the remote printing queues attached to clients and remote print them. Everything should work without a hitch. In the case of possible hitches, see below.

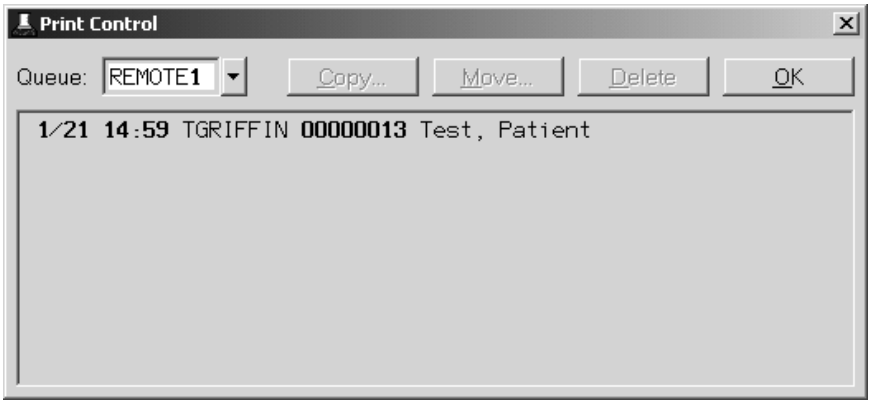
General problems and possible solutions



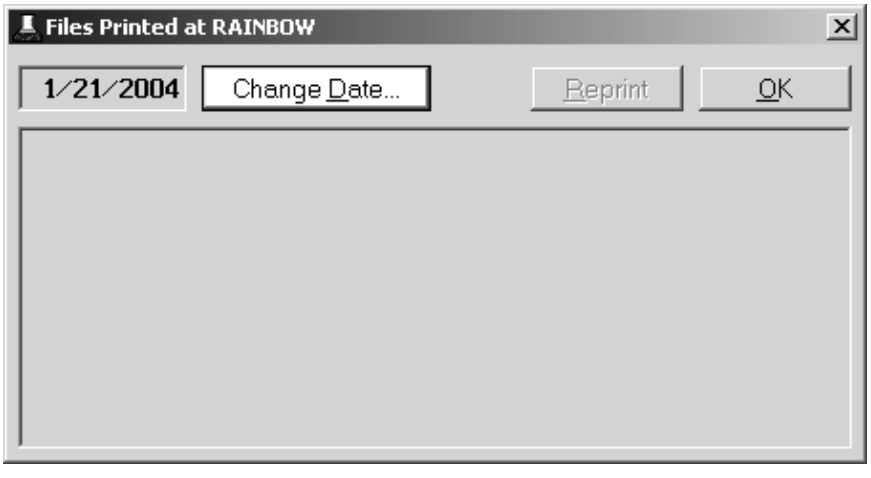
The "Suspend Transmission" button will be checked if SchuyLab has attempted to connect to the remote printer and the connection has failed. To make SchuyLab try the connection again, click on the button to remove the check mark and select **OK.** SchuyLab will try to make the connection again. If it succeeds, it will send all of the reports that were waiting to be printed. If it fails, a check mark will appear again in the Suspend Transmission box.

To tell if there's a problem

The **Waiting** button displays a list of all the reports which are in the queue for that client, waiting to print as soon as the printer becomes available.



The **Reprint** button displays a log of all the reports which have been successfully transmitted to the remote site; this is a way to double-check on the progress of your printing. This will appear in a box with the title of the 8 character code you entered for that client's remote printer (the printer queue in this example is REMOTE1, but the title is RAINBOW). To view a log from a previous day, select the **Change Date** button, and enter the date you want.

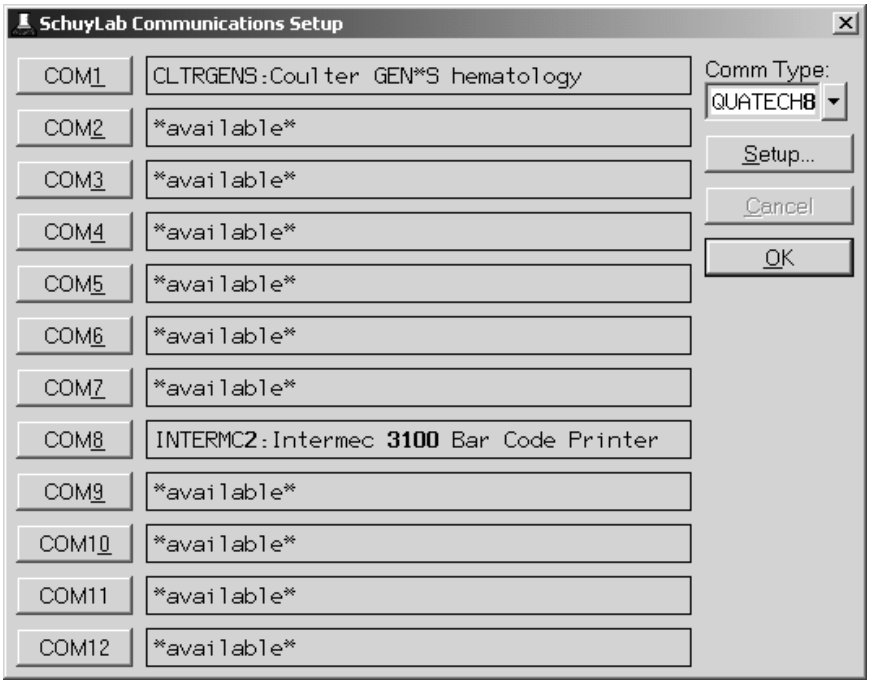


Modem problems

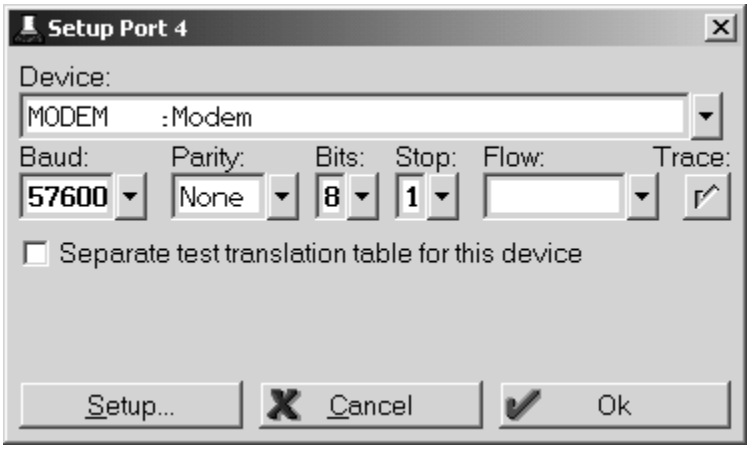
Sometimes the problem can be with the modem. If the station with the modem in it is not making proper "modem noises" (dialing, connecting, etc.), a few things may be amiss. First, the modem may be in the computer, but the computer doesn't know that yet. To tell it there's a modem there:

1. Select **F8. Tools.**
2. Select **Set-Up.**
3. Select **Station Setup.** SchuyLab displays the Configuration screen for a single station.

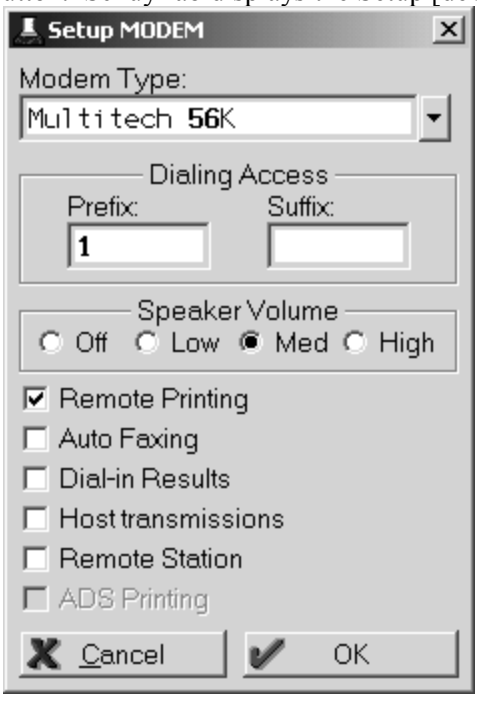
4. Select **Setup Comm.** SchuyLab displays the SchuyLab Communications Setup screen. If your screen looks like the one displayed, the computer doesn't think it has a modem, when it actually does (it'll almost always be in **COM4**).



To correct this, click on the **COM4** button.
SchuyLab displays the Setup Port [number] screen. Click on the pull-down Device: list and select MODEM.



Click on the **Setup...** button. SchuyLab displays the Setup [device] screen.



Select the right numbers for your particular modem from the pull-down screen. Once done, click Remote Printing. Then select **OK.** The SchuyLab Communications Setup screen should have MODEM: Modem in **COM4.**

Other Problems

Other modem problems could stem from the internal buffers filling up. If this happens, just get out of SchuyLab and turn the computer off for about 10 seconds. Then go back in.

Static and other bad "noise" on a modem line, especially a low quality one, can be checked by unplugging the modem line and plugging in a phone. If there is static on the phone line, call the phone company.

Other things that can lead to problems with the transmission include problems in the phone lines outside the building, problems with the remote printer (not turned on, paper jammed or absent, etc.), or even something as simple as someone picking up a phone on the other end, which is why the receiving printer should always have a line of its own. If this happens, the "Suspend Further Print" box will be checked.

Appendix: SchuyFax

The SchuyFax Module will fax patient reports directly from SchuyLab to your clients' fax machines. It can be set up to do this automatically, whenever you print in Batch; or you can fax a single report at a time.

There are three steps of setup before the SchuyLab system is ready to use automatic faxing:

A) Define the fax queue for the automatic fax. You'll need to define a separate queue for each fax number.

B) Attach the fax queue to the client's record. Thereafter, all patients belonging to that client will automatically fax on that queue.

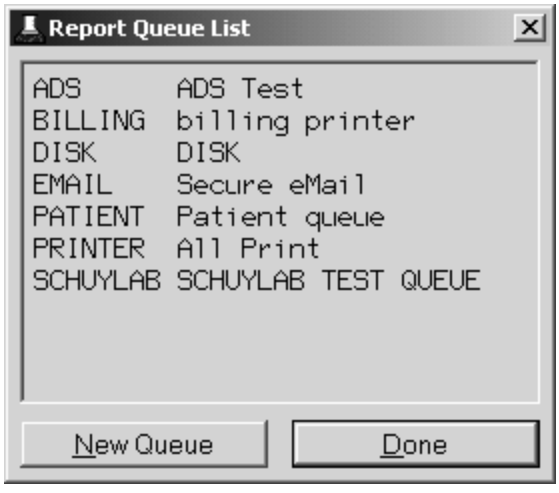
C) Set up the Automatic Fax feature to connect the fax queue for a client to their telephone number.

Report Queues

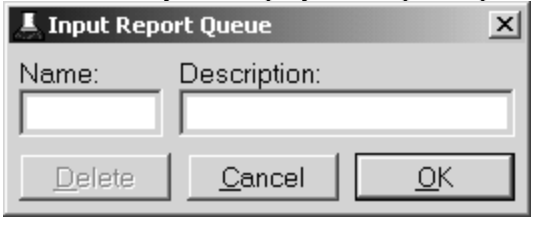
The first step is to define the new queue for the fax. Essentially, SchuyLab considers each fax number as a separate printer, with a printing queue for each.

To set up a new queue for your SchuyFax

1. Select F8. Tools.
2. Select Set-Up.
3. Select Report Setup.
4. Select Report Queues. SchuyLab displays the current list of the Queues available.



1. Select **New Queue.** SchuyLab displays the Input Report Queue box.



2. Fill in the Name and Description entry fields. The Name field can be no more than eight characters, and should be something easily
3. recognized, like "JONESFAX". The description field can be a much longer name, like "DR. JONES MED CLINIC". Select **OK.**
4. Repeat steps 5 and 6 to create the queue for the next fax number.
5. When all the fax queues have been defined, select **Done.** SchuyLab returns to the Report Setup menu screen.

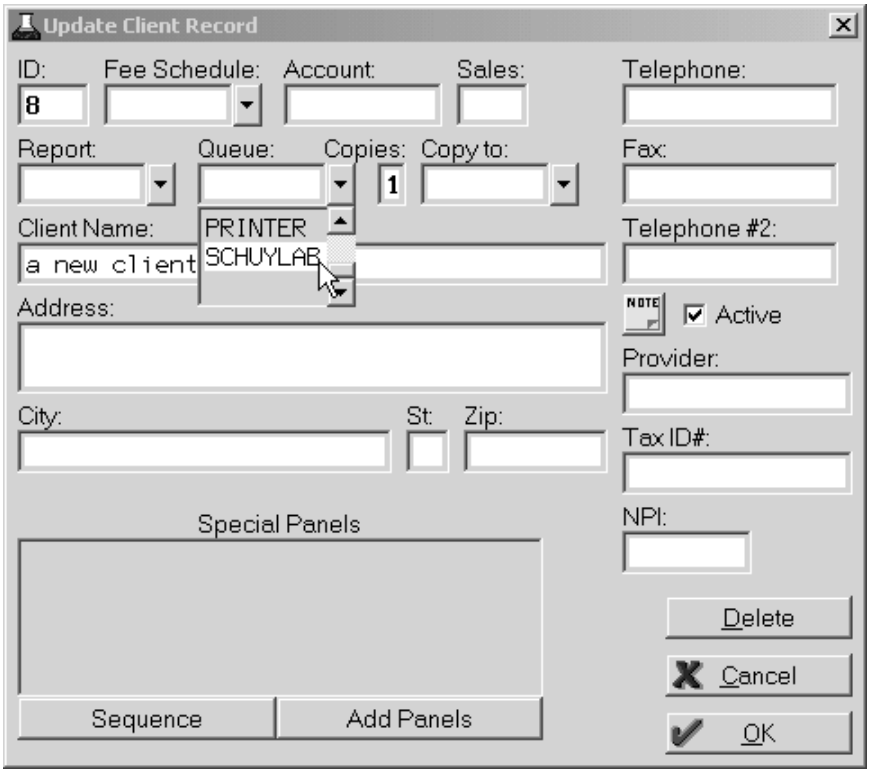
Update Client

Once the queues are defined, to use the automatic fax feature to its fullest, each fax queue must be assigned to its intended client.

To attach the new queue to the client record

1. Select **F8. Tools.**
2. Select **Doctor Records.**
3. Select **Update Client.** SchuyLab displays the Select Client box.

4. Enter the name or number of the client for whom you are setting up the fax. Select **OK.** SchuyLab displays the Update Client Record box.



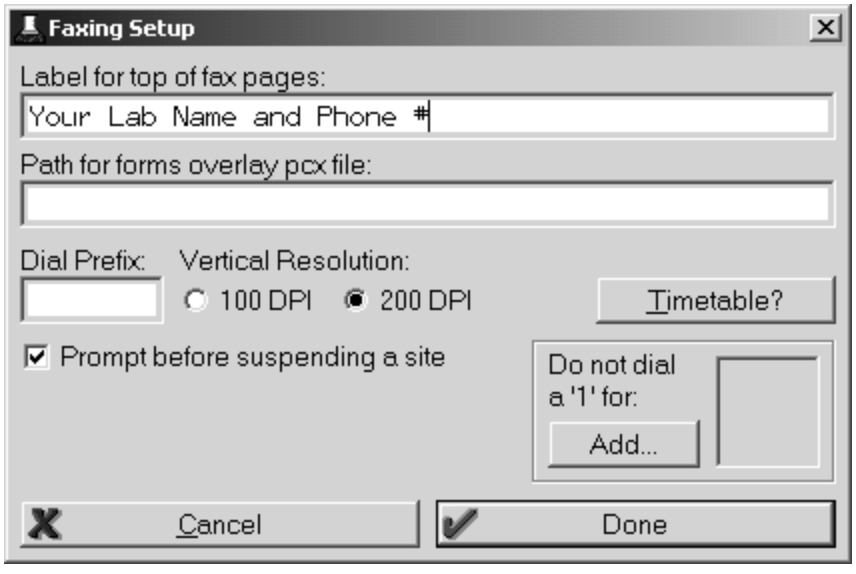
5. In the "Queue" pull-down list box, select the new fax queue you defined for this site. Use the "Copy to" list box to select a local queue if you wish to print out a copy of each patient report in your lab, in addition to the fax automatically sent to the client.
6. In some cases, doctors or the clinics want more than 1 copy sent to them. You can set the number of copies to be faxed, or printed, by changing the number in the Copies box.
7. Select **OK.**

Finally, there are the details of the fax process itself: phone numbers, redials, etc. These are defined through the Fax icon.

SchuyFax Set up

1. Select **F7. Features.**
2. Select **Fax.** SchuyLab displays the Automatic Faxing box, listing all the fax connections currently defined in your system.

3. Select **Setup Faxing.** SchuyLab displays the Faxing Setup box.



4. The information in the **Faxing Setup** box applies to all of the faxes that are sent from SchuyLab. In the **Dial Prefix** field, type any generic digits that have to be dialed before you can call an outside line. (For instance, if you have to dial 9 before you can dial out of your lab, type "9," in this field. The comma causes the modem to pause a moment after dialing the 9, so you're sure to get the dial tone.)

   The **Vertical Resolution** should be set to **200 DPI** (dots per inch). This will keep the fax from looking blobby. (Setting the Vertical Resolution to 100 DPI, on the other hand, makes the fax twice as fast.)

   The other two fields are optional. If you type a message in the "**Label for top of fax pages**" field, that message will appear on every fax as a header. If your lab has a scanned overlay (PCX file) of your report form, you can incorporate it in your fax by typing its path and file name in the "**Path forms for overlay pcx**" field.

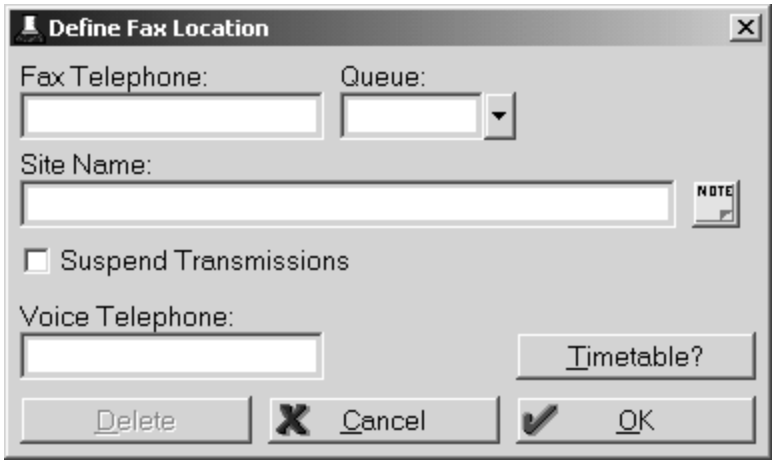
   The **Prompt before suspending a site** check, will always prompt an alert when there is an error faxing to one of you sites. If it is not checked, a site will be suspended automatically if there is a problem. However, if this option is used, it requires a user response before any other faxing can occur.

   Timetable button – **This feature is not working at this time**. The Timetable allows you to automatically send faxes in three ways. Continuously will fax any results that are ready as soon as they are accepted. Every _____ minutes will fax any results that have been accepted only after a set number of minutes that you determine. Finally, Specific Dates and Times. If you

have chosen Specific Dates and Times, another box will become available to add the time and date for faxing.

'Do not dial a 1 for' button – In some areas of the country, you do not need to dial a 1 before the area code. Click on the Add button to add those area codes.

5. When done, select **Done.**
6. To define a new fax line, select **New.** SchuyLab displays the Define Fax Location box.

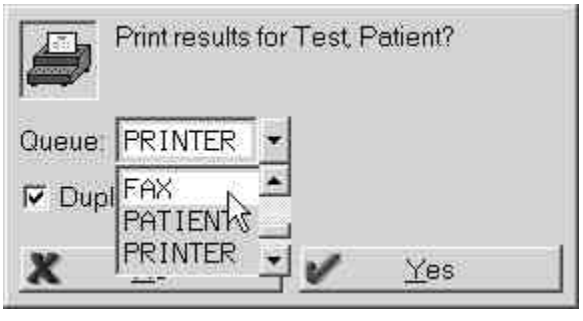


7. In the Fax Telephone field, type the correct telephone number for the fax at your client's site . Do ***not*** use any dashes or spaces. Include the area code, if necessary, but not the "1" (or any generic prefixes, such as "9", since they've already been defined in the Fax Setup box).
8. Select the correct fax queue (the one you just set up) from the Queue pull-down list.
9. The Site Name and Voice Telephone fields are optional. They allow you to enter a more complete description of the client's site, so it will be easily available for future reference.
10. Timetable button – **Again, this feature is not working at this time**. The Timetable allows you to automatically send faxes in three ways. Continuously will fax any results that are ready as soon as they are accepted. Every _____ minutes will fax any results that have been accepted only after a set number of minutes that you determine. Finally, Specific Dates and Times. If you have chosen Specific Dates and Times, another box will become available to add the time and date for faxing.
11. Select **OK.**
12. Repeat steps 6-9 to set up for the next fax number.
13. When finished, select **Done.**

Using the SchuyFax Module

You have now implemented automatic faxing for the client(s) you have selected. From this point, faxing takes place in one of two ways:

1. Anytime you **Batch Print** a series of reports, or if the SchuyLab system is set to **Automatically Print When Final** (i.e. begin printing the moment the results are accepted), the Fax Module will automatically fax reports to the clients with assigned fax queues. Only the patients belonging to a client will have reports automatically faxed to that client.
2. You can also fax a single report in the same way you'd print it: through the Patient Processing screen. Select **F2.Patient** or **F3.Specimen** to reach the Patient Processing screen, then select **Print Results.** SchuyLab displays the "Print results for [Patient Name]?" dialog box.



The **Queue** list box will, by default, show the printing queue assigned for this patient -- usually, your in-house SchuyLab printer. However, instead of printing the report in house, select the queue for the fax number for which the report is intended. Then select **Yes.** SchuyLab will send the report to the chosen fax queue, which in turn will begin the faxing process.

Monitoring SchuyFax

To track which faxes have been sent, and when, select the SchuyFax icon. SchuyLab displays the **Automatic Faxing** box, showing the fax numbers currently defined on the system.

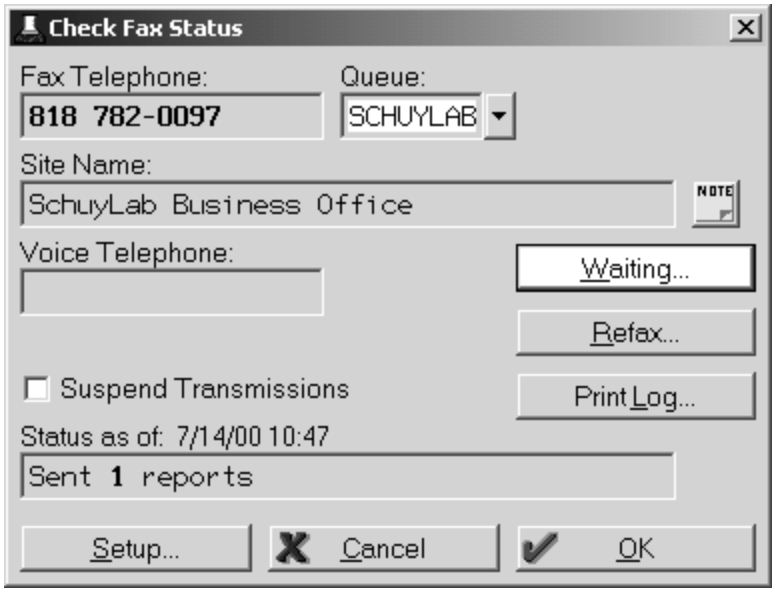
This screen here displays a lot of information that you can use to track your faxing status. First, **Suspend All Fax Transmissions** will stop faxing to every site. This option is used in the rare event that you need to disable faxing immediately to all of your clients. The **Show sites:** options allow you to quickly view all of your fax machines or which of your faxing locations still have reports that are waiting to print. **Sort by:** allows changing the order your faxing locations are listed for you to more easily find the specific site you are looking for.

The **Defined fax stations:** box holds most of the pertinent information you need to review the status of your reports. Here every one of your Fax machines are listed. Next to each site is a small dot. Each color represents a different basic status.

> The **Green** status light means that everything is working properly. SchuyLab has either faxed successfully to this site, or is waiting to do so.
> The **Yellow** status light means that the location is on hold: there was a problem when SchuyLab tried to send a fax to the site, but once SchuyLab has faxed its other reports it will try to reaching this number again. The most common reason for this status light is the modem received a Busy signal when it dialed the number.

The **Red** status light means that the location has been suspended. When SchuyLab tried to connect to this fax machine, there was a problem that will prevent SchuyLab from trying to connect again until you tell it to try again. The most common reason for this error is either the Client's fax machine is not plugged in, or the fax number is not correct and there is no fax machine attached to the line.

In addition, below each site you may see some basic messages: "Sent 3 Reports" "Busy" "NO CARRIER" "Dialing…". If you select a specific fax number you can monitor additional information. SchuyLab displays the **Check Fax Status** box.



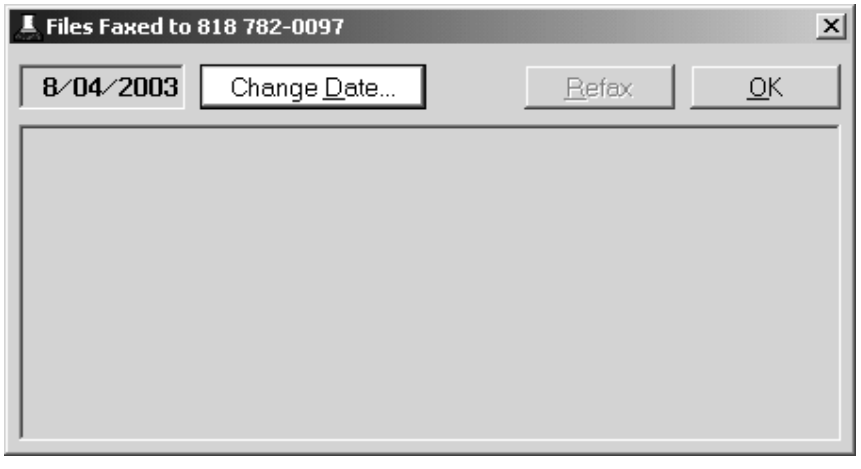
The three control features of the Check Fax Status box are the "**Suspend Transmissions**" box, and the **Waiting** and **Refax** buttons. In order:

1. The "**Suspend Transmissions**" button will be checked if SchuyLab has attempted to connect to the client's fax and the connection has failed. To make SchuyLab try the connection again, remove the check mark from the button, and select **OK.** SchuyLab will attempt to connect to the client's fax again. If it succeeds, it will transmit all of the reports that are queued under the **Waiting** button. If it fails, a check mark will appear again in the Suspend Transmission box.

2. The **Waiting** button displays a list of all of the reports which are in the queue for that client, waiting to print as soon as the printer becomes available.

From here, print jobs can be copied or moved to another printing queue (which includes other fax queues), or deleted altogether. This is done in the same manner as for the Print Control icon, found in **F6.Print.**

3. The **Refax** button will also display a log of all the reports which have been successfully transmitted to the client's fax machine. To fax another copy of any report, select them from the list, then select the **Refax** button.

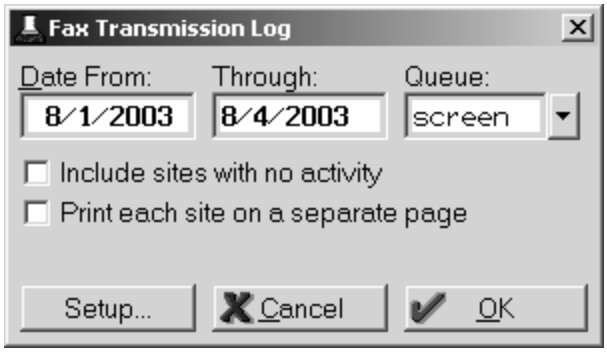


To view a log from a previous day, select the **Change Date** button, and enter the date you wish to view. SchuyLab displays the reports that had been faxed to that client on that day. These, too, can be selected and refaxed.

Printing your Fax Transmission Log

On your main Automatic Faxing window and on each individual Fax Location you will see the **Print Log…** button. This allows you to print out a **Fax Transmission Log**. This report records every time SchuyLab connected to one of your Clients and

which reports were sent. If you print this log from the Automatic Faxing window, it will include all of your clients on one report. If it is printed from a specific Fax Location, it will only include the reports sent to that fax machine. However, from either place, you will see the **Fax Transmission Log** window appear:



The **Date From:** and **Through:** fields allow you to select the date range you want this Fax Log to incorporate. **Queue:** allows you to select which printer you want the log to be sent.

The two check boxes only appear when printing the global Fax Transmission Log for all of your locations.

The **Include sites with no activity** option will include the name of every fax machine you have defined, whether or not you have used it within the specified date range. The default is to only print a log of the clients that you actually transmitted to during this time period.

Print each site on a separate page will place each client and all of their faxed reports on their own page.
Pressing **OK** will print out a copy of the Fax Transmission Log.

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